LBT-V10

SERVICE MANUAL

AEP Model
UK Model

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— Continued on page 2 —

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY SHADING AND MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

MICROFILM

STEREO COMPONENT SYSTEM

SONY®

AUD

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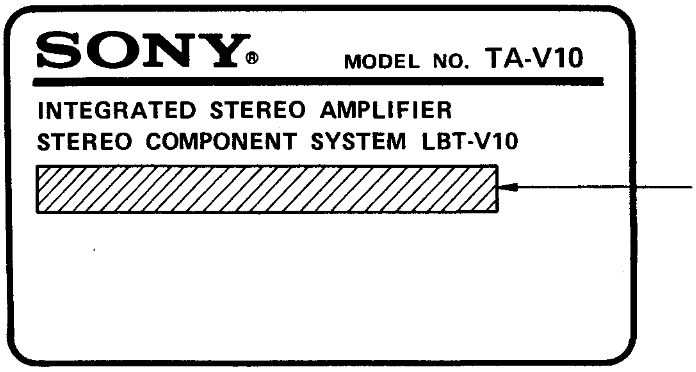
MODEL IDENTIFICATIONS

– Specification Label –

(PS-LX10, ST-V10L & TC-V10 have no differences by the model.)



AC: 220 V ~50/60 Hz 90 W . . . AEP model

AC: 240 V ~50/60 Hz 90 W . . . UK model

SPECIFICATIONS

ST-V10L

System	FM stereo, FM/AM superheterodyne tuner Quartz-locked digital synthesizer system

FM tuner section

Tuning range	87.5—108 MHz
Antenna terminals	75 ohms unbalanced 300 ohms balanced
Intermediate frequency	10.7 MHz

	ST-V10L (at 40 kHz deviation)
Sensitivity	at 46 dB quieting 17.3 dBf. 4 μV (mono) 38.3 dBf, 45 μV (stereo)
Usable sensitivity	10.3 dBf, 1.8 μV (IHF) 1.7 μV (S/N = 26 dB)
Signal-to-noise ratio	74 dB (mono) 69 dB (stereo)
Harmonic distortion at 1 kHz	0.2% (mono) 0.5% (stereo)
Separation at 1 kHz	40 dB
Frequency response	40 Hz — 12.5 kHz ±0.5 dB 30 Hz — 15 kHz $^{+0.5}_{-2.0}$ dB
Selectivity	at 300 kHz 70 dB
Image response ratio	50 dB
IF response ratio	90 dB

MW/LW tuner section

		MW	LW
Tuning range		531—1,602 kHz	153—344 kHz
Antenna		Layout-free AM antenna, External antenna terminal	
Intermediate frequency		450 kHz	
Usable Sensitivity	Layout-free AM antenna	300 μV/m (999 kHz)	700 μV/m (230 kHz)
	external antenna	30 μV (999 kHz)	200 μV (230 kHz)
Signal-to-noise ratio (50 mV/m)		54 dB	
Harmonic distortion (50 mV/m, 400 Hz)		0.3%	
Selectivity		35 dB (9 kHz)	

General

Dimensions	Approx. 355 × 55 × 260 mm (w/h/d) (14 × 2¹/₄ × 10¹/₄ inches) incl. projecting parts and controls
Weight	Approx. 1.8 kg (4 lb.) net

TC-V10

Recording system	4-track 2-channel stereo
Frequency response	DOLBY NR OFF (DIN) With TYPE IV cassette (Sony METALLIC cassette) 30 - 16,000 Hz (±3 dB) With TYPE II cassette (Sony UCX cassette) 30 - 15,000 Hz (±3 dB) With TYPE I cassette (Sony BHF cassette) 30 - 14,000 Hz (±3 dB)
Wow and flutter	0.065% WRMS (NAB) ±0.2% (DIN)

General

Dimensions	Approx. 355 × 105 × 245 mm (w/h/d) (14 × 4¹/₄ × 9³/₄ inches) incl. projecting parts and controls
Weight	Approx. 2.9 kg (6 lb. 7 oz) net

TA-V10

Continuous RMS power output

25 + 25 watts
(6 ohms, at 1 kHz, 0.5% THD)
20 + 20 watts
(6 ohms, 40 Hz - 20 kHz, 0.5% THD)

Inputs

	Sensitivity	Impedance
PHONO (phono jacks)	2 mV	50 kilohms
CD/AUX (phono jacks)	150 mV	50 kilohms
MIC (phone jack)	2 mV	20 kilohms

Outputs	Headphones Accepts headphone of 8 ohms or more Speaker Accepts sepakers of 6 to 16 ohms
Frequency response	PHONO: RIAA curve ± 0.5 dB CD/AUX: 15 Hz - 50 kHz $^{+0}_{-3}$ dB MIC: 100 Hz - 10 kHz $^{+0}_{-6}$ dB

General

Dimensions	Approx. 355 × 80 × 260 mm (w/h/d) (14 × 3¹/₄ × 10¹/₄ inches) incl. projecting parts and controls
Weight	Approx. 4.6 kg (10 lb. 3 oz) net

PS-LX10

Turntable

Platter	30 cm (12 in.), aluminium-alloy diecast
Motor	Linear torque BSL (brushless and slotless) motor
Drive systgem	Direct drive
Control system	FG servo control system
Speed	$33^{1}/_{3}$ rpm, 45 rpm
Wow and flutter	0.03% (WRMS)*, 0.035% (WRMS) ±0.045% (DIN)
Signal-to-noise ratio	75 dB (DIN-B)
Automatic system	Return, reject, lead in, repeat, tonearm up down

Tonearm

Type	Statically balanced
Pivot-to-stylus length	200 mm ($7^{7}/_{8}$ in.)
Overall arm length	235 mm ($9^{3}/_{8}$ in.)
Overhang	18 mm ($^{23}/_{32}$ in.)
Tracking error	+ 3°30', −1°

Cartridge VL-43GS

Type	Moving magnet type
Frequency response	20 Hz to 20 kHz
Channel separation	18 dB at 1 kHz
Load impedance	50 kilohms
Tracking force	2.0 g
Stylus	Sony ND-143G (0.6 mil diamond)

General

Dimensions	Approx. 355 × 80 × 330 mm (w/h/d) (14 × $3^{1}/_{4}$ × 13 inches) incl. projecting parts and controls
Weight	Approx. 3.3 kg (7 lbs 11 oz) net

*This new measuring methods concerns only the turntable assembly, including the platter. It excludes wow and flutter caused by the tonearm, the cartridge, or the record. Measured by obtaining signal from magnetic pick-up head.

General

Power requirements	Operates on 220 V ac, 50 Hz (AEP) Operates on 240 V ac, 50 Hz (UK)
Power consumption	90 watts

FEATURES

- Flat connecting cords, supplied, which enable you to connect each component quickly and securely.
- With the POWER switch on, pressing any function key automatically changes the program in use. There is no need to turn on the power of each component or to switch the function.
- On the front panels of the components, most of the controls and switches are "touch pad" switches.
- Synchronized play of the turntable and a cassette deck is possible.

Amplifier section

- This section supplies power to other sections.
- Function display shows the program in use.
- MIC input jack for microphone mixing.
- CD/AUX input jacks for connecting a CD (compact disc) player, external tuner or cassette deck and PHONO input jacks for listening to records.
- Five frequency band equalizer to compose the source sound to your liking.

Tuner section

- High sensitivity and high selectivity.
- The PLL (phase locked loop) circuit allows precise tuning of FM and MW/LW stations.
- Each station PRESET key allows you to memorize one station for each band and to select these memorized stations with the touch of a key.
- The supplied LAYOUT-FREE AM antenna provides more satisfactory AM reception.

Cassette deck section

- The cassette deck can use the metal tapes, providing wider dynamic range and extended frequency response.
- Easy recording—Merely insert a cassette and press ● key.
- Automatic Music Sensor (AMS) allows easy playback of the selection being played and easy skipping to the next selection.
- The automatic recording control system sets the recording level automatically.
- The record muting function allows you to eliminate material you do not want to record, such as commercials, and to make a blank space between selections.
- The Dolby NR (Noise Reduction) system reduces tape hiss and assures high quality recording and playback.

Turntable section

- Two motors are used to drive the turntable and the tonearm independently to obtain high-precision turntable speed and quick tonearm response.
- The movement of the turntable and the tonearm is controlled by a microprocessor.
- FG servo system monitors the speed of the turntable with great precision.
- The linear torque BSL (brushless and slotless) direct drive servo motor has a high singnal-to-noise ratio.
- The low-mass tonearm and cartridge allow the stylus to track with greater accuracy.
- With the repeat function, one side of the record can be played repeatedly.

CONNECTIONS

Speaker system is not supplied with the LBT-V10.

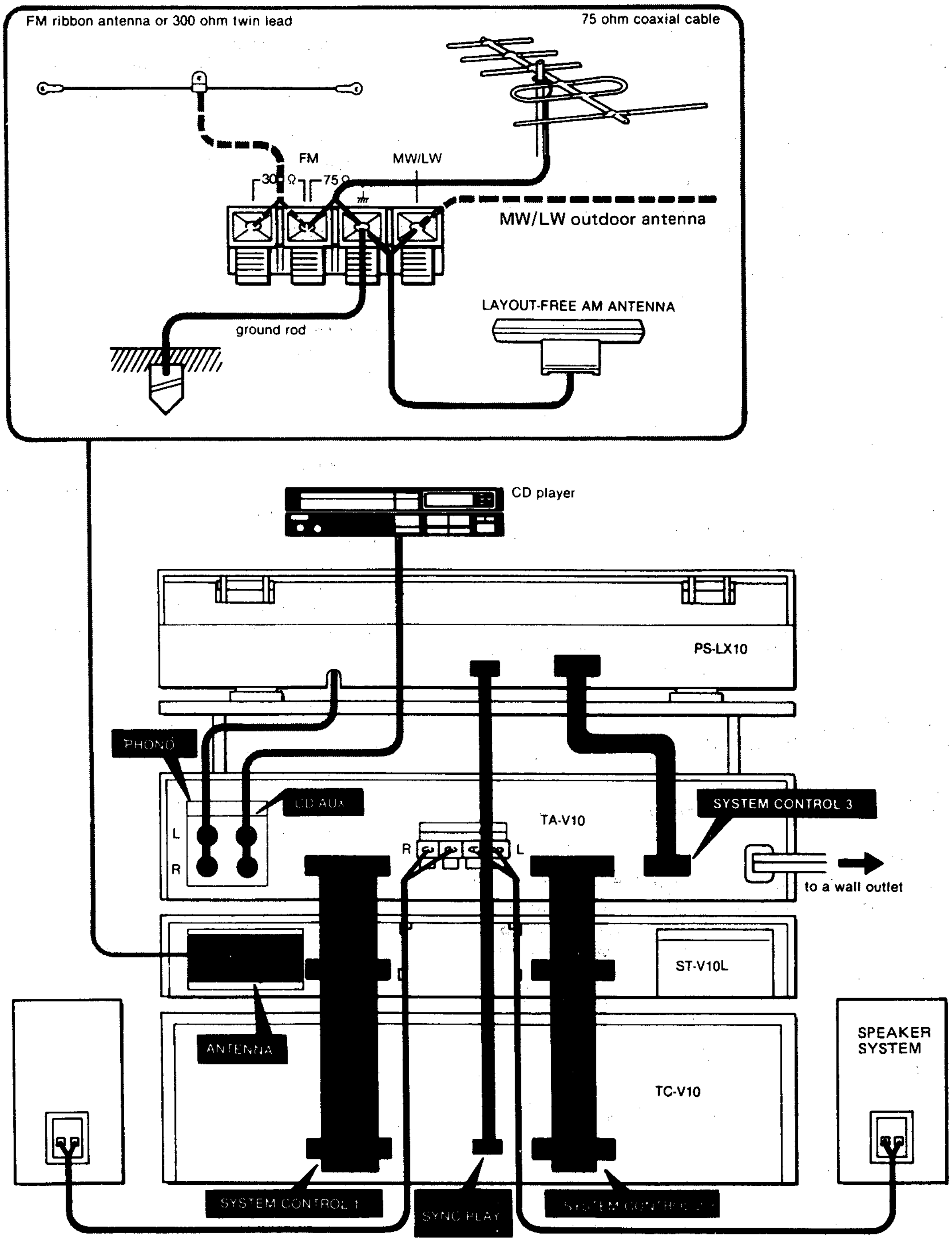
CONNECTION NOTES

- Turn the POWER switch off before connecting or disconnecting the connector to avoid damaging the speaker.
- Be sure to insert the female connector firmly until it clicks into the male connector. Loose connections may cause hum and noise.

To connect the cable, depress the middle of the connector. Never press the ends.

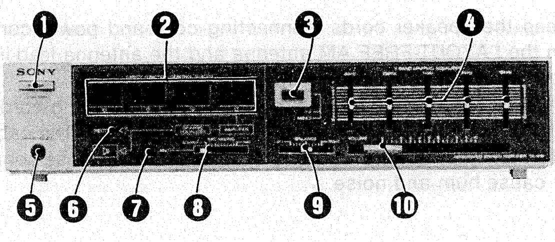
To disconnect the cable, pull the connector out. Never pull the cable itself.

- Keep the speaker cords, connecting cord and power cord away from the LAYOUT-FREE AM antenna and the antenna lead-in of the tuner to avoid possible noise pickup.
- Be sure to connect the red plug of the connecting cord to the right (R) jack and the remaining one to the left (L). The cable connectors should be fully inserted into the jacks. A loose connection may cause hum and noise.

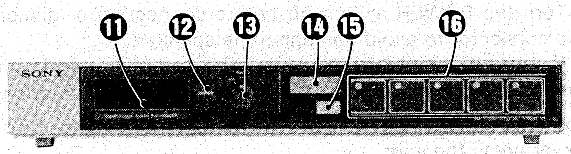

FM ribbon antenna or 300 ohm twin lead
75 ohm coaxial cable
FM
MW/LW
300 Ω
75 Ω
MW/LW outdoor antenna
LAYOUT-FREE AM ANTENNA
ground rod
CD player
PS-LX10
PHONO
CD AUX
L
R
TA-V10
R
L
SYSTEM CONTROL 3
to a wall outlet
ST-V10L
ANTENNA
TC-V10
SPEAKER SYSTEM
SYSTEM CONTROL 1
SYNC PLAY
SYSTEM CONTROL 2

FUNCTION OF CONTROLS

Amplifier TA-V10



Tuner ST-V10L



① POWER switch
Press to turn on the power of the amplifier, tuner, cassette deck and turntable system. To turn them off, press it again.

② Function display
The associated indicator illuminates to show the program in use when appropriate key is pressed. When the POWER switch is turned on, the TUNER indicator illuminates.
TAPE: When the ▶ key is pressed.
CD/AUX: When the CD/AUX button is pressed.
TUNER: When the BAND selector setting is changed or the TUNING or PRESET key is pressed.
PHONO: When the START/STOP key is pressed.

③ CD/AUX button
Press this button to listen to or record an auxiliary program (connected to CD/AUX inputs at the rear).

④ Graphic equalizer controls
Slide downwards or upwards to equalize the signal.
Equalization has effect on listening to and recording various program sources and on microphone mixing.
Normally set the controls at the center position.

⑤ HEADPHONES jack (stereo phone jack)
Accepts headphones with a stereo phone plug. The headphone volume can be adjusted with the VOLUME control.

⑥ RECORD indicator
During recording, this indicator lights up.

⑦ MIC (microphone) jack (phone jack)
Connect the microphone for microphone mixing.

⑧ MIC MIXING control
This is for adjusting the balance between the volume of the microphone and the program source. Slide the control towards MIC (right) for more microphone volume and less source volume. Slide the control towards SOURCE (left) for more source volume and less microphone volume.
When microphone mixing is not made, slide this control completely to SOURCE.

⑨ BALANCE control
This is for adjusting the balance of the left and right channel output level. Normally set the control to the center position.

⑩ VOLUME control
This is for adjusting the overall output level.

⑪ Band/frequency-display
This identifies the received frequency. The TUNED indicator appears in the display when a signal is tuned in.

⑫ STEREO indicator
This lights when an FM stereo program of sufficient signal strength is tuned in.

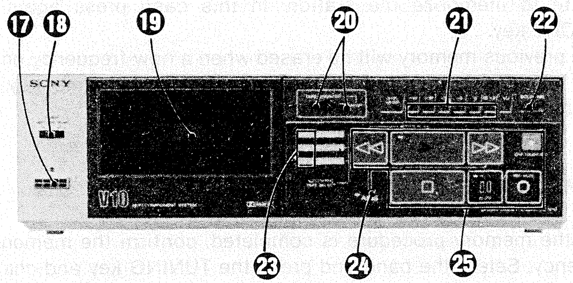
⑬ BAND selector
Selects the desired band.
FM, MW or LW.

⑭ TUNING key
Press either side of the key to change the frequency.
Press the left side (−) to go to a lower frequency and the right side (+) to go to a higher. To change the frequency continuously, keep the key pressed.

⑮ MEMORY key
Press to operate memory circuit. The MEMORY indicator will appear in the band/frequency-display for a few seconds indicating that the memory circuit is standing by.

⑯ PRESET keys
To call up a memorized station, press the appropriate key. Associated key number will appear in the band/frequency-display.

Cassette deck TC-V10



⑰ ⏏ (eject) button
Press this button to open the cassette holder.

⑱ TIMER switch
You can set the unit to record or playback at a predetermined time by connecting an optional timer. Normally set it to OFF.

⑲ Cassette holder

⑳ TAPE COUNTER and RESET button
The tape counter provides a numerical reference point while recording which can be used to index a recorded cassette. To reset to zero, press the RESET button.

㉑ LEVEL METER
This meter shows the input level during recording and recorded levels during playback for either the left or right channel, whichever is higher at that instant. The left-most LED will light when the POWER switch is turned on.

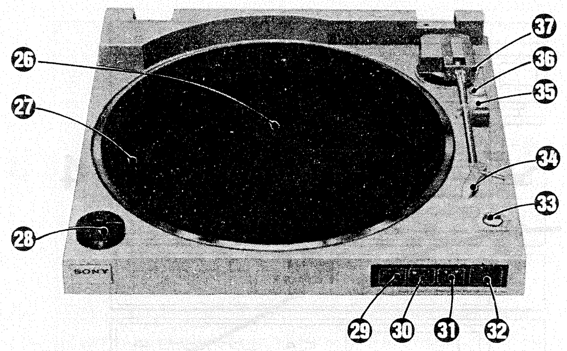
㉒ DOLBY NR switch
To record with the Dolby NR (Noise Reduction) process, depress this switch (ꓷD ON). To record without the Dolby NR process, press again and release this switch (ꓷD OFF).
When playing back, set this switch to the same position used in recording.

㉓ Tape type indicators
The type of the tape being used is automatically detected by the automatic tape selector system and the corresponding indicator lights.

㉔ AMS key and indicator
During playback, press this key and ◀◀ or ▶▶ key to locate the beginning of the selection being played or the following selections.

㉕ Function keys
- **◀◀ (rewind) key:** Press this key to rewind the tape.
- **▶ (playback) key:** Press this key to playback the tape.
- **▶▶ (fast-forward) key:** Press this key to advance the tape rapidly.
- **● (record) key:** Press this key to start recording. The RECORD indicator illuminates.
- **○ (record muting) key:** Press this key to eliminate unwanted material and to insert a blank space during recording.
- **❚❚ (pause) key:** To stop the tape for a moment during recording or playback, press this key. To restart, press it again.
- **■ (stop) key:** To stop the tape, press this key.

Turntable PS-LX10



㉖ Center spindle

㉗ Rubber mat

㉘ 45 rpm adaptor

㉙ SPEED selector and indicators
When the POWER switch is turned on, the record speed is $33^{1}/_{3}$ rpm.
Press this key when a 45 rpm record is to be played.
Press it again for a $33^{1}/_{3}$ rpm record. Corresponding indicator illuminates.

㉚ REPEAT key and indicator
Press this key to repeat play. The indicator illuminates.
To cancel the repeat play, press this key again.

㉛ ARM LIFTER key
This key lifts and lowers the tonearm.

㉜ START/STOP key
Press to start the record playing. To stop during play, press it again.

㉝ SIZE SELECTOR
For 17 cm (7 in.) record, set it to 17 and for 30 cm (12 in.) record, set it to 30.

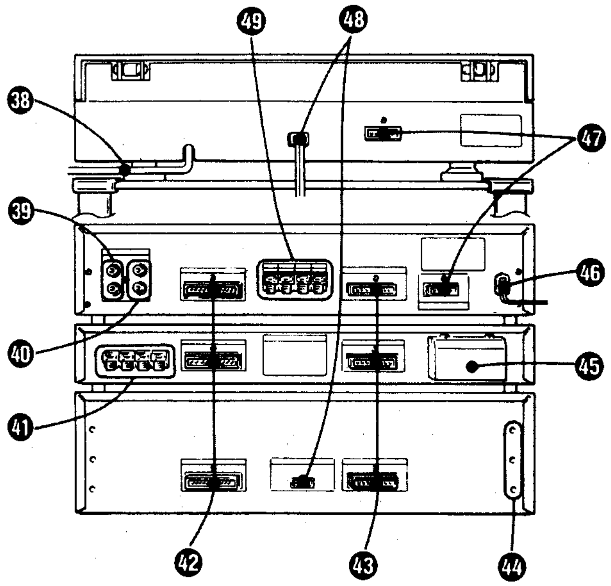
㉞ Cartridge

㉟ Arm rest

㊱ ANTI-SKATING compensator

㊲ Drop-point adjustment hole

Rear panel



㊳ Phono cord
For connecting to PHONO input jacks.

㊴ PHONO input jacks (phono jack)
For connecting the PS-LX10 or an optional turntable system.

㊵ CD/AUX input jacks (phono jack)
These accept the output of the CD player, TV tuner or the cassette deck only for playback.

㊶ Antenna and ground terminals
See page 10.

㊷ SYSTEM CONTROL 1 connectors
These accept the supplied flat cord equipped with three 13-pin connectors.

㊸ SYSTEM CONTROL 2 connectors
These accept the supplied flat cord equipped with three 10-pin connectors (blue).

㊹ Player stand mounting holes

㊺ Battery compartment

Battery life
About one year of operation can be expected when using Sony SUM-3 (NS) New Super batteries. Be sure to replace the batteries once a year to avoid damage from leaking batteries.

㊻ AC power cord

㊼ SYSTEM CONTROL 3 connectors
These accept the supplied flat cord equipped with two 5-pin connectors.

㊽ Synchro remote control connectors
Connect the supplied remote control cord to synchronize the operation of the cassette deck with the turntable system.

㊾ Speaker terminals
Connect an optional speaker system with the speaker cords.

CONNECTIONS BETWEEN EACH SET

The speaker system is not supplied with LBT-V10.

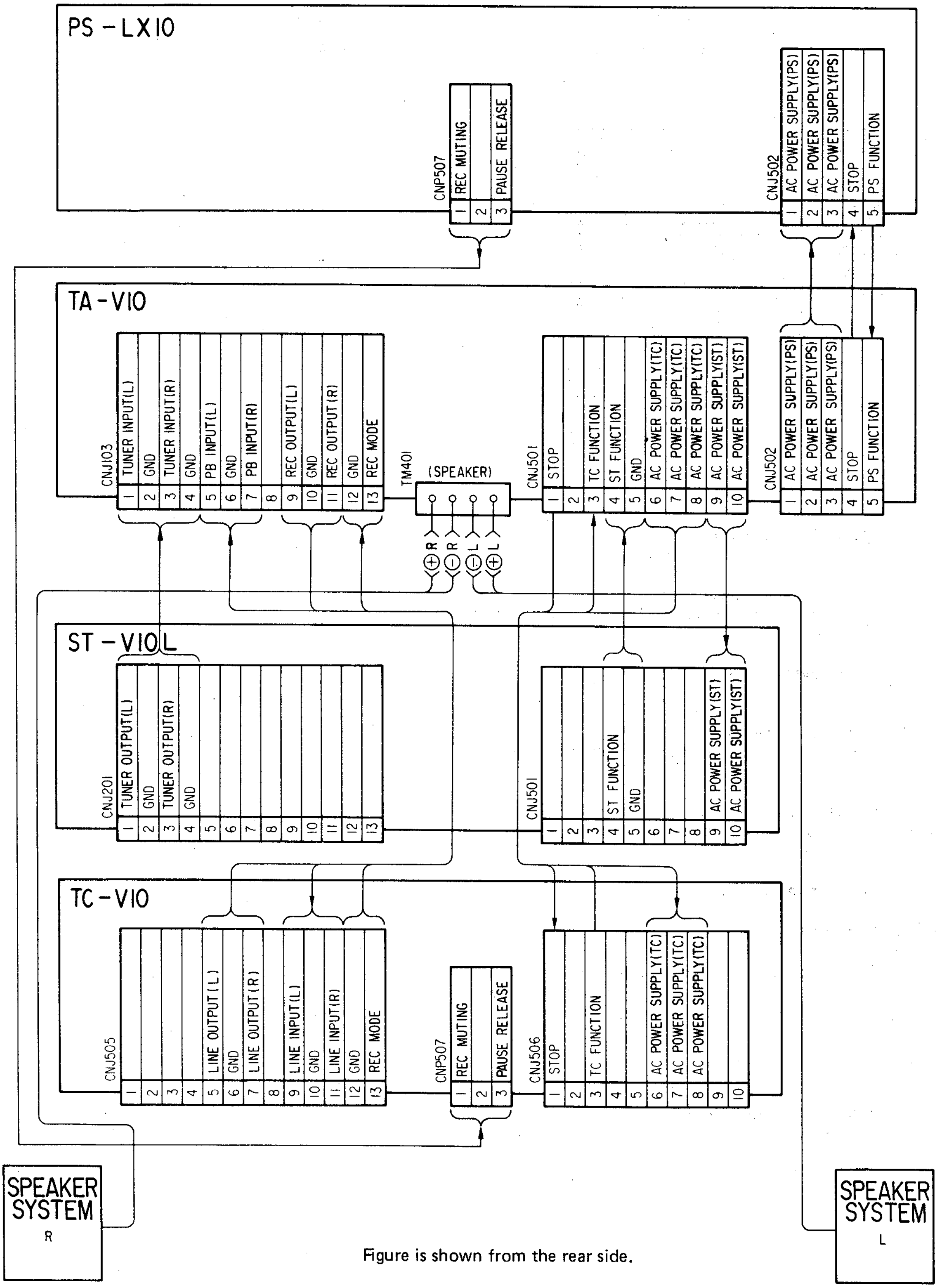
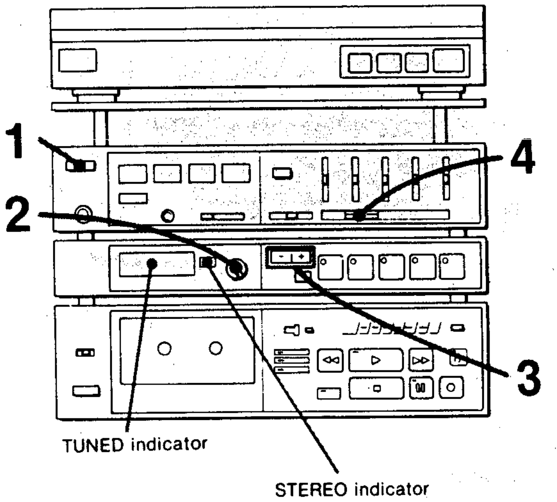

PS-LX10
CNP507
1 REC MUTING
2
3 PAUSE RELEASE
CNJ502
1 AC POWER SUPPLY(PS)
2 AC POWER SUPPLY(PS)
3 AC POWER SUPPLY(PS)
4 STOP
5 PS FUNCTION
TA-V10
CNJ103
1 TUNER INPUT(L)
2 GND
3 TUNER INPUT(R)
4 GND
5 PB INPUT(L)
6 GND
7 PB INPUT(R)
8
9 REC OUTPUT(L)
10 GND
11 REC OUTPUT(R)
12 GND
13 REC MODE
TM401
(SPEAKER)
⊕R
⊖R
⊖L
⊕L
CNJ501
1 STOP
2
3 TC FUNCTION
4 ST FUNCTION
5 GND
6 AC POWER SUPPLY(TC)
7 AC POWER SUPPLY(TC)
8 AC POWER SUPPLY(TC)
9 AC POWER SUPPLY(ST)
10 AC POWER SUPPLY(ST)
CNJ502
1 AC POWER SUPPLY(PS)
2 AC POWER SUPPLY(PS)
3 AC POWER SUPPLY(PS)
4 STOP
5 PS FUNCTION
ST-V10L
CNJ201
1 TUNER OUTPUT(L)
2 GND
3 TUNER OUTPUT(R)
4 GND
5
6
7
8
9
10
11
12
13
CNJ501
1
2
3
4 ST FUNCTION
5 GND
6
7
8
9 AC POWER SUPPLY(ST)
10 AC POWER SUPPLY(ST)
TC-V10
CNJ505
1
2
3
4
5 LINE OUTPUT(L)
6 GND
7 LINE OUTPUT(R)
8
9 LINE INPUT(L)
10 GND
11 LINE INPUT(R)
12 GND
13 REC MODE
CNP507
1 REC MUTING
2
3 PAUSE RELEASE
CNJ506
1 STOP
2
3 TC FUNCTION
4
5
6 AC POWER SUPPLY(TC)
7 AC POWER SUPPLY(TC)
8 AC POWER SUPPLY(TC)
9
10
SPEAKER SYSTEM
R
SPEAKER SYSTEM
L

Figure is shown from the rear side.

OPERATION OF THE TUNER

Follow the numbered sequence.



1 Depress the POWER switch (▭ ON). The TUNER indicator lights up.
2 Select the desired band with the BAND selector.
FM, MW, LW
3 Tune in the desired station with the TUNING key, observing the STEREO indicator (in FM reception), the TUNED indicator and the band/frequency-display.
4 Adjust the volume with the VOLUME control.

●**STEREO indicator** illuminates when an FM stereo program of sufficient signal strength is received.
●**TUNED indicator** illuminates when a station is tuned in.

To receive the broadcasting program after you have enjoyed another program sources, change the BAND selector setting or press the TUNING or PRESET key.

Adjust the antenna as required
FM : Fully extend the supplied ribbon antenna and position it for best reception.
MW/LW: Position the supplied LAYOUT-FREE AM antenna for the best reception.
If it is difficult to hear the broadcast, connect an external antenna.

TO MEMORIZE STATION FREQUENCIES

Press the MEMORY key after you have tuned in the desired station to be memorized. While the MEMORY indicator is illuminated, press the desired PRESET key. The MEMORY indicator appears and the associated key number will appear in the band/frequency-display. The frequency is then memorized.

Repeat this procedure for each PRESET key.

For each PRESET key, you can memorize an FM, and an MW and an LW stations in any desired sequence. A total of 15 stations can be memorized.

Arrange the order of stations for each PRESET key and note the band and the frequency of each in advance.

Notes
●The MEMORY indicator will go off automatically after a few seconds. When the indicator is out, the memory circuit does not operate to memorize the station. In this case press again the MEMORY key.
●The previous memory will be erased when a new frequency on the same band is committed to the memory of the same key. An erasure cannot be made without a new input.

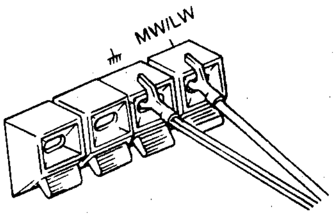
TO CHECK A MEMORIZED FREQUENCY

After the memory procedure is completed, confirm the memorized frequency. Select the band and press the TUNING key and change the frequency display indication. Press the PRESET key to be checked. The frequency which had been memorized should then be indicated in the band/frequency-display.

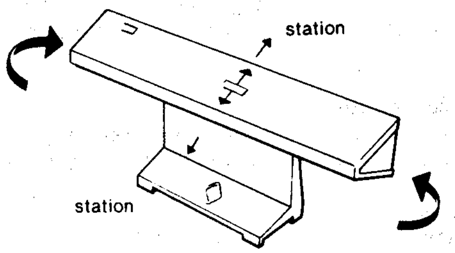
TO RECEIVE A MEMORIZED STATION

Select the band with the BAND selector and simply press the desired PRESET key.

Supplied LAYOUT-FREE AM external ferrite-bar antenna
Compared with a conventional built-in ferrite-bar antenna which cannot be moved freely to obtain optimum reception, the LAYOUT-FREE AM antenna can be placed virtually anywhere.



This antenna is designed to pickup signals from a particular direction. Move the LAYOUT-FREE AM antenna to find the best position for reception.

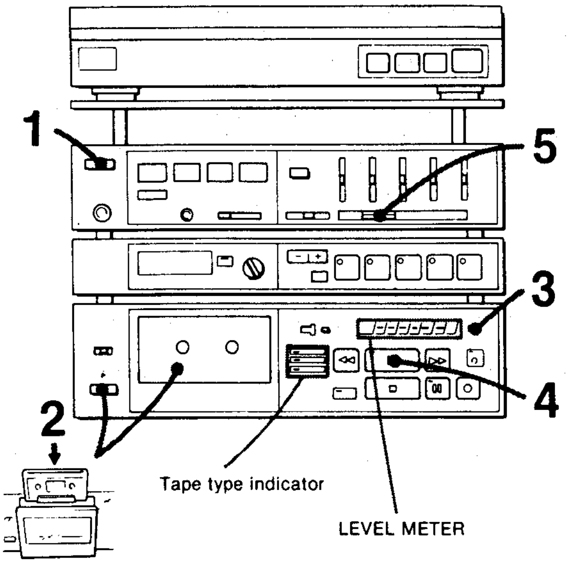


●While recording AM (MW, LW) programs, if a beating sound should be heard, move the LAYOUT-FREE AM antenna to the position where it is not heard.

TAPE PLAYBACK

Caution
Before turning the power on, make sure that the TIMER switch is set to OFF. If the power is on when this switch is set to the REC or PLAY position, recording or playback will start automatically in a few seconds.

Follow the numbered sequence.



1 Depress the POWER switch (▭ ON).
The TUNER indicator lights up. The function keys do not activate until the flickering of the ❚❚ key goes off.
2 Press the ⏏ button and insert a recorded cassette with the desired side towards you and the tape surface down.
The appropriate tape type indicator lights up.
3 Depress the DOLBY NR switch when playing back a tape which has been recorded using the Dolby NR system (▭ ON).
4 Press the ▶ key. The TAPE indicator illuminates and play will begin.
5 Adjust the volume with the VOLUME control.

The LEVEL METER shows the recorded level during playback.

After the tape is completely rewound, the cassette deck shuts off automatically.

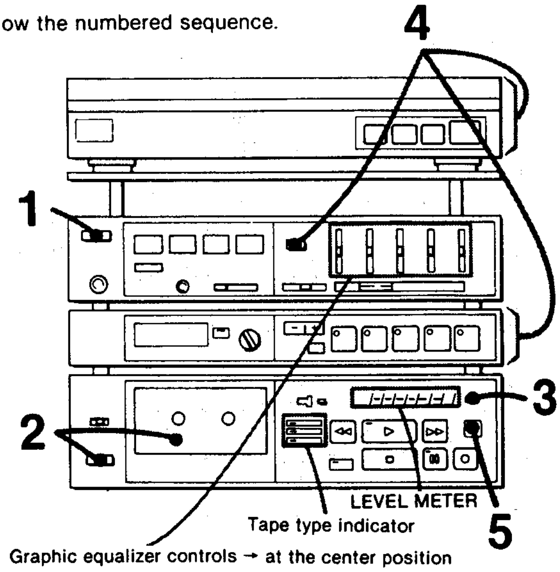
To stop the playback, press the ■ key.

Notes on the blank spaces
●Since AMS works by searching out the blank spaces on a tape, it may not operate if there is noise in the space between selections, or if the space is less than 4 seconds long.
The record muting facility of this cassette deck can make a four second blank space that will assure AMS operation on any recorded tape.
●If the record music includes a long pause, or if it continues for a time at sufficiently low volume, as may happen for instance with classical music, or if any selection is less than 20 seconds long, the AMS will treat it as a blank.

TAPE RECORDING

Caution
Before turning the power on, make sure that the TIMER switch is set to OFF. If the power is on when this switch is set to the REC or PLAY position, recording or playback will start automatically in a few seconds.

Follow the numbered sequence.



1 Depress the POWER switch (▭ ON).
The TUNER indicator lights up. The function keys do not activate until the flickering of the ❚❚ key goes off.
2 Press the ⏏ button and insert a cassette with the tape surface down.
The appropriate tape indicator lights up.
3 Depress the DOLBY NR switch when recording using the Dolby NR system (▭ ON).
4 Play the program source to be recorded. The appropriate function indicator lights up according to the program source in use.
To record a broadcast: Tune in the desired station.
To record from the phonograph: See "Synchronized play of the turntable and the cassette deck" on page 14.
To record the program source connected to the CD/AUX inputs: Play the program source and press the CD/AUX button.
5 Press the ● key. The RECORD indicator illuminates and recoding will begin.

To adjust the tone quality, use the graphic equalizer controls.

The LEVEL METER shows the input level during recording.

After the tape is completely rewound, the cassette deck shuts off automatically.

To stop the recording, press the ■ key.
To stop the tape momentarily, press the ❚❚ key.

AUTOMATIC RECORDING CONTROL SYSTEM

No recording level adjustement is necessary with the automatic recording control system. The recording level is automatically adjusted properly.
The settings of the VOLUME and BALANCE controls have no effect on recording, so you can listen to the program at any volume you want while recording.

MORE ACCURATE RECORDING STARTS

You can use the ❚❚ (pause) key to start recording more accurately than is possible when recording is started by pressing the ● key. After completing step **4**, press the ❚❚ key then press the ● key. At the moment you wish to start recording, you need only press the ❚❚ key again.

RECORD MUTING

By pressing the ○ (record muting) key during recording, four seconds interspacing is provided automatically, eliminating unwanted program material such as broadcasting commercials. While the record muting is operating, the incoming signal is not recorded on the tape but it continues to register on the meters and feed to the monitor so that you know exactly what is going on.

1 Press the ○ key when the segment you do not want to record begins. The indicator of the ❚❚ key will blink, and the tape path will pause automatically after four seconds.
2 When you want to resume recording, press the ❚❚ key.

To insert a blank over four seconds long
keep the ○ key pressed for as long as you want the blank segment on the tape to be. After four seconds, the indicator of the ❚❚ key will blink more rapidly. When you release the ○ key, the cassette deck will be in the pause mode. When you want to resume recording, press the ❚❚ key to release the pause mode.

ERASING

When the cassette deck functions in recording mode, the erase head automatically erases any previously recorded material.
To erase without recording:

1 Make sure that the safety tab of the cassette is in place, or that the tab slot is covered with plastic tape. Disconnect the microphone from the MIC jack.
2 Insert the cassette to be erased.
3 Press the ▶ key. The TAPE indicator illuminates.
4 Press the ◀◀ or ▶▶ key to rewind or to advance the tape for any desired point to be erased.
5 Press the ● key. Erasing will begin.

USING THE GRAPHIC EQUALIZER CONTROLS

The level of a band will be increased by sliding a control upwards, and decreased by sliding it downwards.
To equalize the sound, first set all equalizer controls at their center position and lay the program. Slide the control of the frequency band to be equalized upwards or downwards until you perceive an improvement.

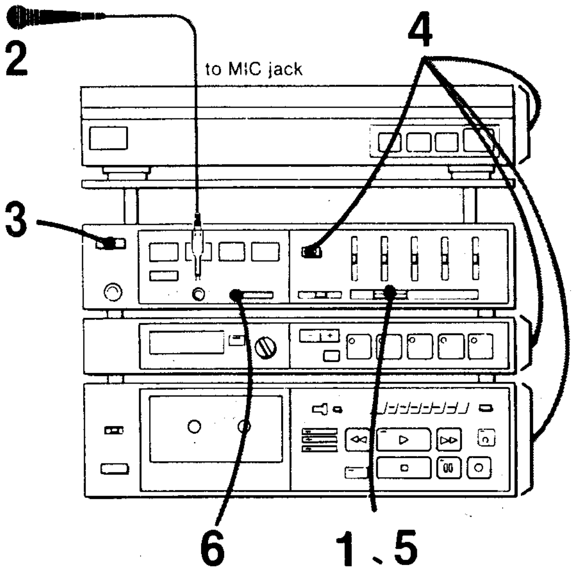
Frequency coverage of each equalizer control
63 Hz: Use this control to boost or cut the bass.
250 Hz: Use this control to adjust the middle frequency range.
1 kHz: Use this control to provide more presence of vocals.
4 kHz: Use this control to adjust the brightness of sound.
12 kHz: This control effects general treble. Slide downwards to reduce high frequency noise, such as tape hiss.

Notes

- The graphic equalizer controls have effect on recording, on listening to various program sources and on microphone mixing.
- Normally, keep each control at its center position.

MICROPHONE MIXING

Follow the numbered sequence.



1 Lower the volume with the VOLUME control.
2 Connect the microphone to the MIC jack.
3 Depress the POWER switch (⏏ ON).
4 Play the sound source to be mixed with the microphone sound.
5 Adjust the overall sound level with the VOLUME control.
6 Adjust the MIC MIXING control to get the good mixing balance.

You can also add the equalization value to the mixed sound.
See "using the graphic equalizer controls" on page 12.

TIPS FOR BETTER MIXING

Howling

If the microphone is placed too near speakers, a howling effect caused by acoustic feedback may occur. When this happens, change the direction of the microphone or decrease the volume until the howling stops.

Mixing balance between the microphone and the program source.

To get a good mixing balance, adjust the MIC MIXING control. Slide the control towards MIC (right) for more microphone volume and less source volume. Slide it towards SOURCE (left) for more source volume and less microphone volume.

RECORDING THE MIXED SOUND

You can record the sound from the microphone mixed with a program source.

To record the sound mixed with a record, a compact disc or an auxiliary program source connected to the CD/AUX inputs.

Insert a cassette into the cassette deck and press the ● key.

To record the sound mixed with a taped program

Another cassette deck is required for playback. Connect this cassette deck to the CD/AUX inputs. Insert a cassette into the TC-V10 for recording, press the CD/AUX button and start playback of the recorded cassette. Then press the ● key.

To record only the sound from the microphone

Turn off the equipment connected to the CD/AUX inputs (if connected). Insert a cassette into the cassette deck and press the CD/AUX button then press the ● key.

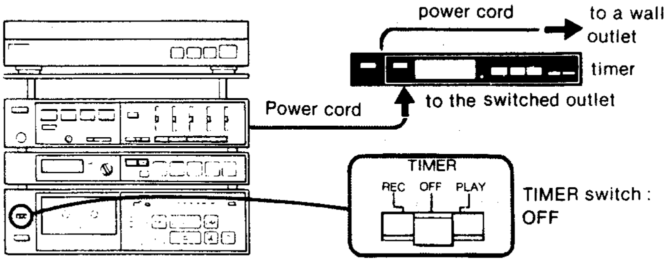
Note

When you have finished mixing, be sure to disconnect the microphone from the MIC jack and to slide the MIC MIXING control completely towards SOURCE.

USING THE TIMER

By connecting an optional timer to the LBT-V10, you can record a radio program or wake up to the taped program or the radio program at any desired time.

Connection



Timer activated recording

1 Set the timer so that power is supplied to LBT-V10.
2 Turn on the LBT-V10 and tune in the station which will broadcast the program you want to record.
3 Set the cassette deck's TIMER switch to OFF.
4 Insert a cassette and select the Dolby NR system. Make sure that the tab is intact or that plastic tape covers the tab slot.
5 Set the timer for the desired time. (At this point power to the connected equipment will be cut off.)
6 Set the cassette deck's TIMER switch to REC.

The cassette deck is now ready to start recording at the time set on the timer.

To wake up to a taped program

1 Set the cassette deck's TIMER switch to OFF.
2 Turn on the LBT-V10 and set the appropriate switches for playback.
3 Turn on the cassette deck and insert the recorded cassette.
4 Set the timer for the desired time. (At this point power to the connected equipment will be cut off.)
5 Set the cassette deck's TIMER switch to PLAY.

The cassette deck is now ready to start playback at the time set on the timer.

To wake up to a radio program

1 Set the cassette deck's TIMER switch to OFF.
Turn on the LBT-V10 and tune in the station.
3 Set the timer for the desired time (At this point, power to the connected equipment will be cut off.)

The tuner is now ready to receive a program at the time set on the timer.

Note

The cassette deck's TIMER switch will function properly only if the cassette deck is turned on after the switch is set to REC or PLAY. Do not change the setting of the TIMER switch during the few seconds stand-by period immediately after the power is turned on. If you want to change the setting of the switch, turn the power off first.

SYNCHRONIZED PLAY OF THE TURNTABLE AND THE CASSETTE DECK

Record recording starts only when the START/STOP or ARM LIFTER key is pressed. When the tonearm lowers onto the record, the cassette deck goes into the record mode and when the tonearm is lifted up, the deck goes into the auto record muting mode for four seconds, then into the record stand-by mode.

Before operation, check the synchro remote control cord connection.

1 Depress the POWER switch (⊐ ON).
The TUNER indicator illuminates.
2 Place a record on the platter.
3 Select the correct record size and speed with the SIZE SELECTOR and SPEED selector.
4 Press the ❚❚ key and then ● key. The cassette deck is set in record stand-by mode.
5 **To record from the beginning of a record,** press the START/STOP key. When the tonearm lowers onto the record, the record stand-by mode is released and recording begins.
To record from a certain point on the record, move the tonearrn by hand over the desired point and press the START/STOP key. When the tonearm lowers onto the record, the record stand-by mode is released and recording begins.

To lift up the tonearm to move it to a different point on the record press the ARM LIFTER key. When the tonearm is lifted up, auto-record muting activates for four seconds, and the record stand-by mode is assumed.
To stop recording during record play, press the START/STOP key. When the tonearm is lifted up, auto-record muting activates for four seconds, and the record stand-by mode is assumed.

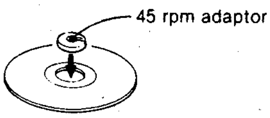
When record play ends, the tonearm returns automatically to the arm rest and the turntable stops rotating.

Caution If the START/STOP key is pressed during recording of other program sources, the record stand-by mode, not the record recording mode is assumed.

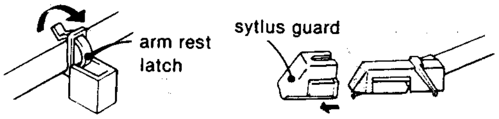
RECORD PLAYING

PREPARATION

- Place a record on the platter. To play a 45 rpm record, put the supplied 45 rpm adaptor over the center spindle.

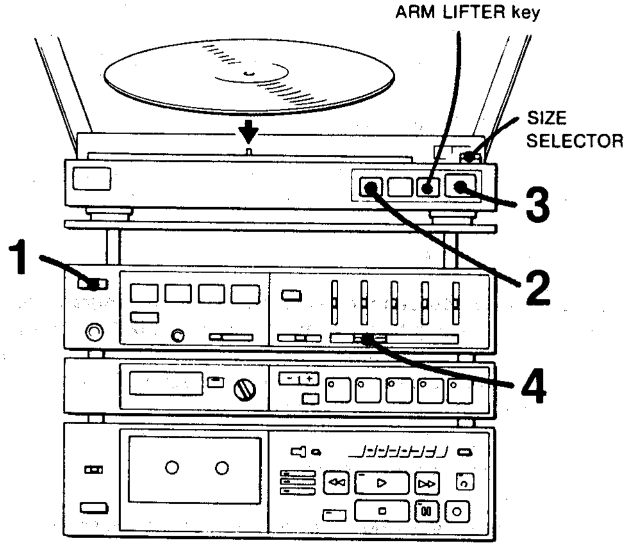


- Select the record size with the SIZE SELECTOR according to the record to be played.
  30 cm record → 30
  17 cm record → 17
- Lower the volume with the VOLUME control.
- Unlock the arm rest latch and remove the stylus guard.



AUTO PLAY

Follow the numbered sequence.



1 Depress the POWER switch (⊐ ON). The TUNER indicator illuminates.
2 Select the correct record speed with the SPEED selector.
3 Press the START/STOP key. The PHONO indicator illuminates and play will begin.
4 Adjust the volume with the VOLUME control.
Adjust the graphic equalizer controls according to your room acoustics.

When the tonearm reaches the end of the record, it will automatically return to the arm rest and the turntable will stop rotating.

Notes
- 25 cm (10 in) records cannot be played automatically. To play these records, proceed as in "MANUAL PLAY"
- Changing the SIZE SELECTOR setting during operation or incorrect setting of the SIZE SELECTOR may cause a malfunction.

MANUAL PLAY

—To begin record play at a particular point

After following step 1 and 2 in "AUTO PLAY", move the tonearm by hand to the desired point on the record, then press the START/STOP key. Play will begin. Adjust the volume with the VOLUME control.

When the tonearm reaches the end of the record, it will automatically return to the arm rest and the turntable will stop rotating.

Notes

- To play a 25 cm (10 in) records, set the SIZE SELECTOR to 30.
- Changing the SIZE SELECTOR setting during operation or incorrect setting of the SIZE SELECTOR may cause a malfunction.

TO LIFT UP THE STYLUS DURING PLAY

Press the ARM LIFTER key. To start playing from the same point, press the key again. To start playing from a different part of the record, move the tonearm by hand to the desired point of the record then press the key again.

TO STOP DURING PLAY

Press the START/STOP key.
The tonearm will return to the arm rest and the turntable will stop rotating.

TO REPEAT PLAY

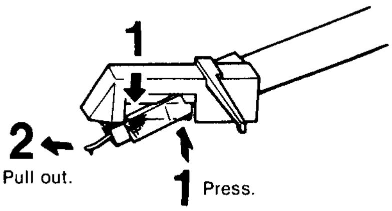
Press the REPEAT key either before or after starting play.
The indicator in this key illuminates. The tonearm continues to repeat play unless the key is pressed again.

To cancel the repeat function during play, press the REPEAT key again.
The indicator in the key goes off and the repeat function is cancelled. The tonearm returns automatically to the arm rest when the tonearm reaches to the end of the record.

To stop during repeat play, press the START/STOP key. The indicator in the REPEAT key goes off and the tonearm returns to the arm rest. Then the repeat function is cancelled.

REPLACING THE STYLUS

The stylus will lose its effectiveness and begin to damage records after about 400 hours of use.
An ND-143G replacement stylus is available at your Sony dealer.
Handle the stylus carefully as it is very delicate.



Be sure to turn off the POWER switch before replacing the stylus.
Secure the tonearm to the arm rest, detach the stylus assembly by grasping it between the thumb and forefinger then insert the new sytlus.

PARTS LIST

ACCESSORY & PACKING MATERIALS

Part No.	Description
1-402-082-11	ANTENNA, FERRITE-ROD (LW,MW,SW)
1-501-224-00	ANTENNA, FEEDER
1-557-109-21	CORD, CONNECTION
1-557-307-11	CORD (WITH CONNECTOR)
1-557-308-21	CORD (WITH CONNECTOR)
1-557-357-21	CORD (WITH CONNECTOR)
♠;1-560-938-00	PIN CONNECTOR 5P
3-312-970-00	(TC-V10)...SHEET, PROTECTION
3-701-630-00	BAG, POLYETHYLENE
3-701-634-00	(PS-LX10)...BAG, POLYETHYLENE
3-701-806-00	ADAPTOR, 45, (E)
3-773-788-41	MANUAL, INSTRUCTION
3-795-835-11	(ST-V10L)...INSTRUCTION
4-357-936-00	(PS-LX10)...SHEET, PROTECTION
4-855-809-00	(TA-V10)...SHEET, PROTECTION
4-875-574-00	(ST-V10L)...SHEET, PROTECTION
4-883-720-00	(PS-LX10)...TURNTABLE
4-885-598-01	SCREWDRIVER, ADJUSTMENT
4-887-941-11	(PS-LX10)...SHEET, TURNTABLE
4-887-948-00	(PS-LX10)...HOLDER, TURNTABLE
4-887-949-00	(PS-LX10)...CUSHION
4-887-950-00	(PS-LX10)...PROTECTOR
4-887-951-00	(PS-LX10)...BOLSTER, ARM
4-887-952-00	(PS-LX10)...CUSHION, ARM
4-903-508-01	(AEP)........INDIVIDUAL CARTON
4-903-513-01	HOLDER, ANTENNA
4-903-514-01	CUSHION (RIGHT), UPPER
4-903-520-01	CUSHION (LEFT), UPPER
4-903-521-01	CUSHION, LOWER
4-903-530-01	(UK)..........INDIVIDUAL CARTON
X-3701-105-0	ROD ASSY, CLEANING, HEAD

NOTE:

- Items marked " ♠ " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

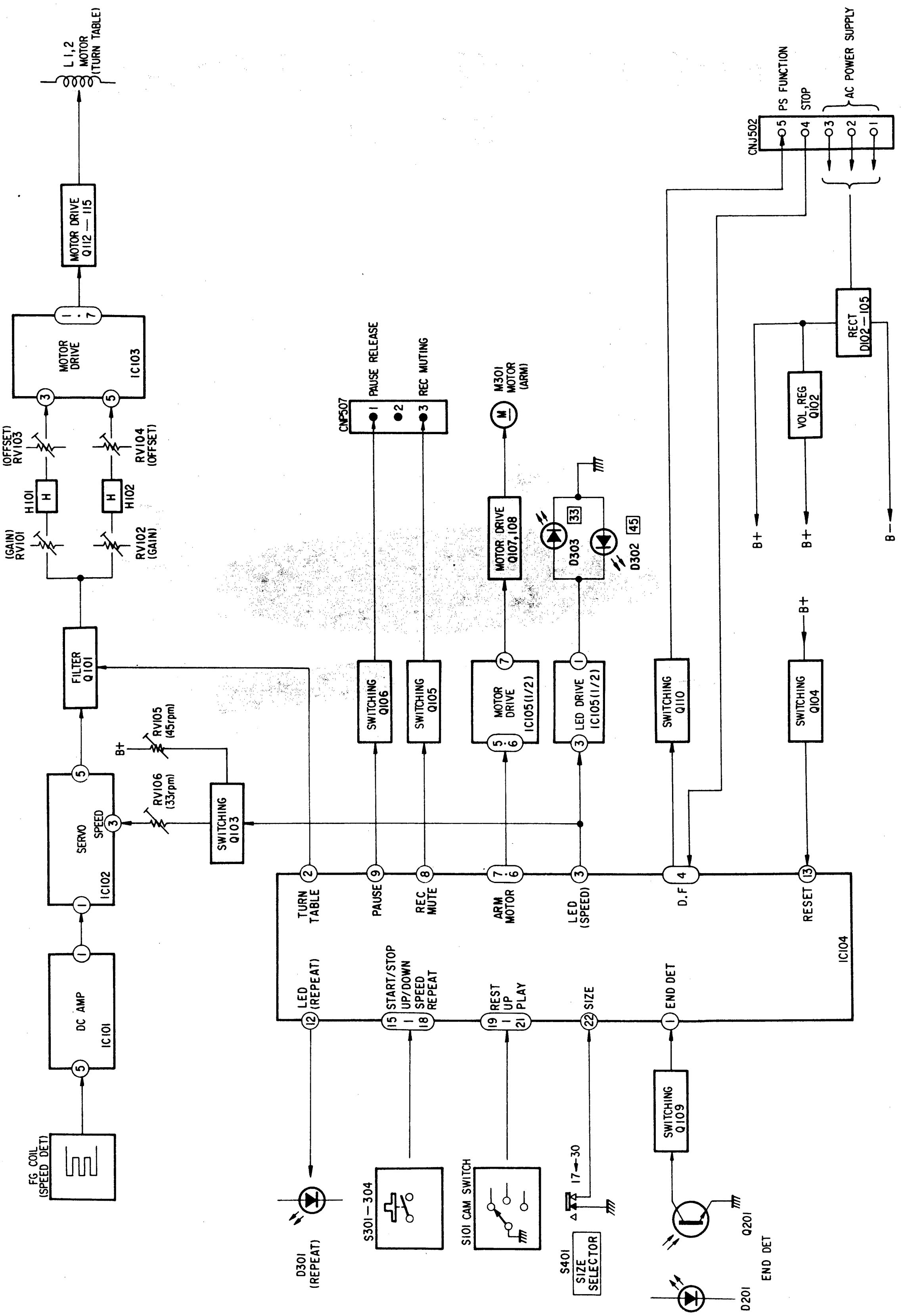
STEREO TURNTABLE SYSTEM

〔PS-LX10〕

SONY
SPEED
REPEAT
ARM LIFTER
START
STOP

SECTION 1
OUTLINE

1-1. BLOCK DIAGRAM


L1,2 MOTOR (TURN TABLE)
MOTOR DRIVE Q112 — 115
MOTOR DRIVE IC103
1 7
3 5
(OFFSET) RV103
RV104 (OFFSET)
H101
H102
(GAIN) RV101
RV102 (GAIN)
FILTER Q101
B+
RV105 (45rpm)
RV106 (33rpm)
SERVO SPEED IC102
SWITCHING Q103
DC AMP IC101
FG COIL (SPEED DET)
CNP507
1 PAUSE RELEASE
2
3 REC MUTING
M301 MOTOR (ARM)
M
MOTOR DRIVE Q107,108
D303 33
D302 45
SWITCHING Q106
SWITCHING Q105
MOTOR DRIVE IC105(1/2)
LED DRIVE IC105(1/2)
SWITCHING Q110
SWITCHING Q104
CNJ502
5 PS FUNCTION
4 STOP
3 2 1 AC POWER SUPPLY
RECT D102 — 105
VOL. REG Q102
B+
B+
B−
B+
IC104
TURN TABLE
PAUSE
REC MUTE
ARM MOTOR
LED (SPEED)
D.F
RESET
LED (REPEAT)
START/STOP
UP/DOWN
SPEED
REPEAT
REST
UP
PLAY
SIZE
END DET
2 9 8 7 6 3 4 13
12 15 1 18 19 1 21 22 1
SWITCHING Q109
D301 (REPEAT)
S301 — 304
S101 CAM SWITCH
S401 SIZE SELECTOR
17→30
Q201
END DET
D201

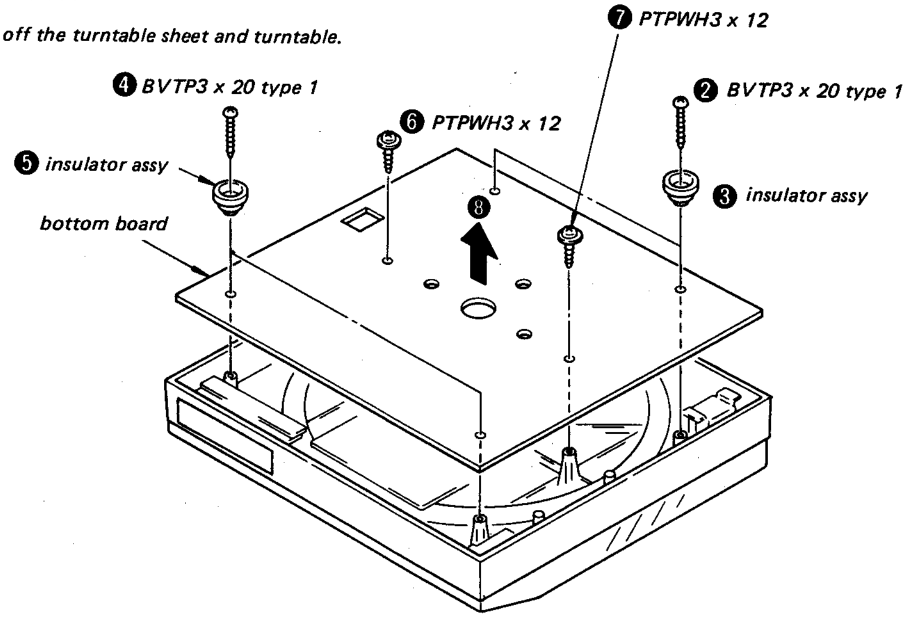
SECTION 2
DISASSEMBLY

2-1. REMOVAL

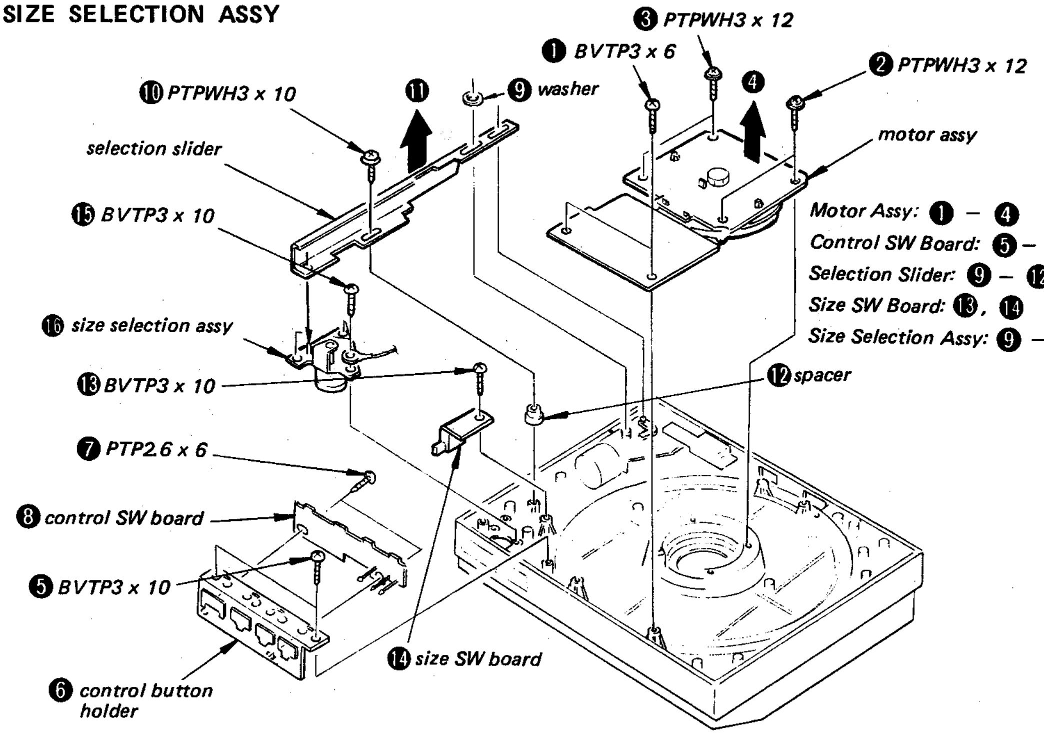
- Follow the disassembly procedure in the numerical order given.

BOTTOM BOARD

❶ *Take off the turntable sheet and turntable.*


❼ PTPWH3 x 12
❹ BVTP3 x 20 type 1
❷ BVTP3 x 20 type 1
❻ PTPWH3 x 12
❺ insulator assy
❸ insulator assy
❽
bottom board

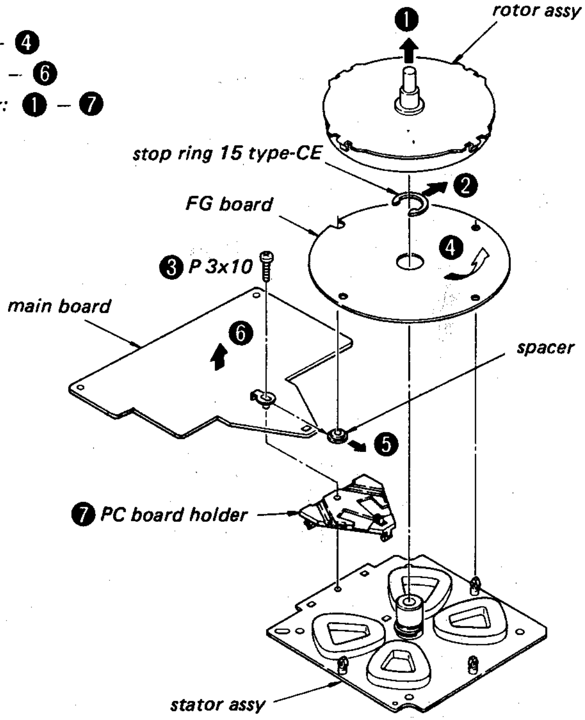
MOTOR ASSY / CONTROL SW BOARD / SELECTION SLIDER / SIZE SW BOARD / SIZE SELECTION ASSY


❸ PTPWH3 x 12
❶ BVTP3 x 6
❷ PTPWH3 x 12
❿ PTPWH3 x 10
⓫
❾ washer
❹
motor assy
selection slider
⓯ BVTP3 x 10
⓰ size selection assy
⓭ BVTP3 x 10
⓬ spacer
❼ PTP2.6 x 6
❽ control SW board
❺ BVTP3 x 10
⓮ size SW board
❻ control button holder

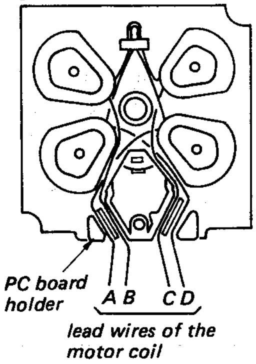
Motor Assy: ❶ – ❹
Control SW Board: ❺ – ❽
Selection Slider: ❾ – ⓬
Size SW Board: ⓭, ⓮
Size Selection Assy: ❾ – ⓬, ⓯, ⓰

ROTOR ASSY / FG BOARD / MAIN BOARD / PC BOARD HOLDER

Rotor Assy: ❶
FG Board: ❶ – ❹
Main Board: ❶ – ❻
PC Board Holder: ❶ – ❼

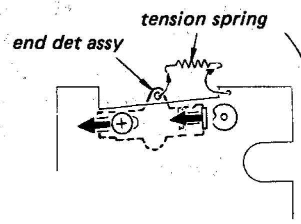

❶
rotor assy
stop ring 15 type-CE
❷
FG board
❹
❸ P 3x10
main board
❻
spacer
❺
❼ PC board holder
stator assy

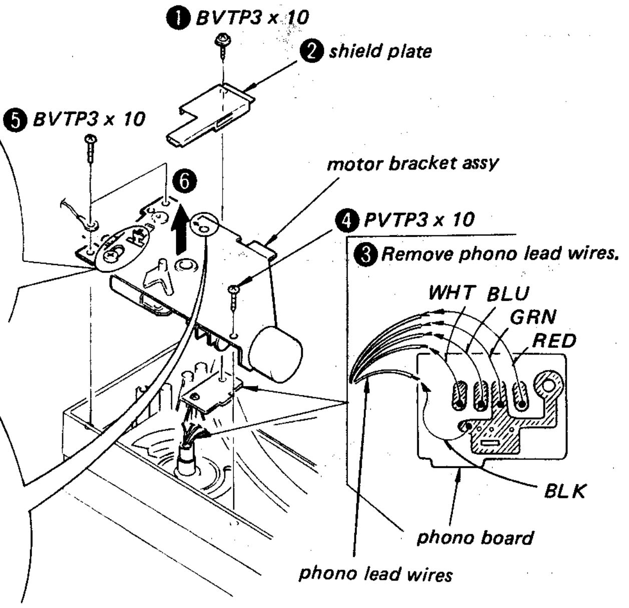
- When installing, run the lead wires of the motor coil through the grooves of the PC board holder.

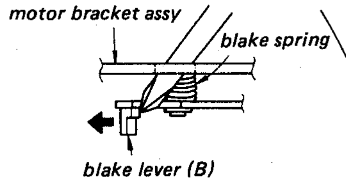

PC board holder
A B C D
lead wires of the motor coil

MOTOR BRACKET ASSY

- When removing motor bracket assy, remove tension spring, slide the end det assy in the direction of arrow, and lift it up as shown.


tension spring
end det assy

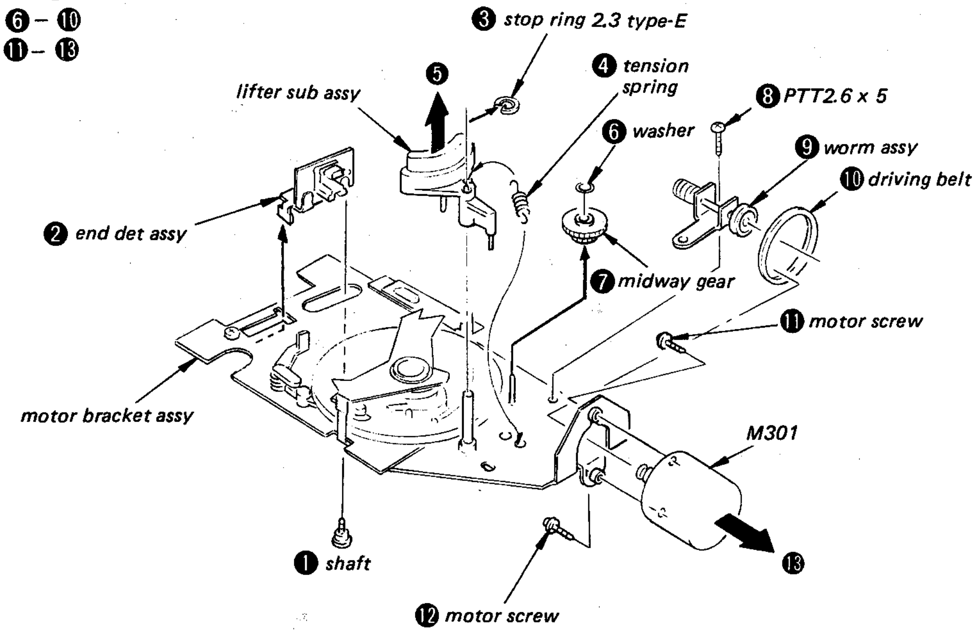

❶ BVTP3 x 10
❷ shield plate
❺ BVTP3 x 10
❻
motor bracket assy
❹ PVTP3 x 10
❸ Remove phono lead wires.
WHT
BLU
GRN
RED
BLK
phono board
phono lead wires


motor bracket assy
blake spring
blake lever (B)

- Reinstall the motor bracket assy with the brake lever (B) set in the direction of arrow by using a screwdriver.

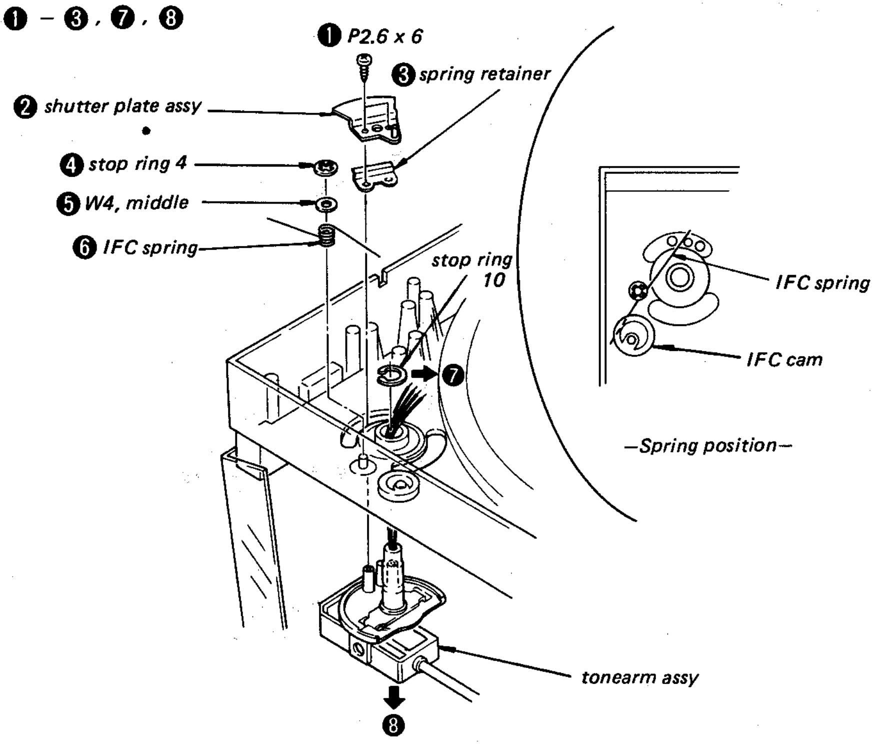
END DET ASSY / LIFTER SUB ASSY / WORM ASSY / M301

End Det Assy: ①, ②
Lifter Sub Assy: ③ – ⑤
Worm Assy: ⑥ – ⑩
M301: ⑧, ⑪ – ⑬


③ stop ring 2.3 type-E
④ tension spring
⑤
lifter sub assy
⑧ PTT2.6 x 5
⑥ washer
⑨ worm assy
⑩ driving belt
② end det assy
⑦ midway gear
⑪ motor screw
motor bracket assy
M301
① shaft
⑬
⑫ motor screw

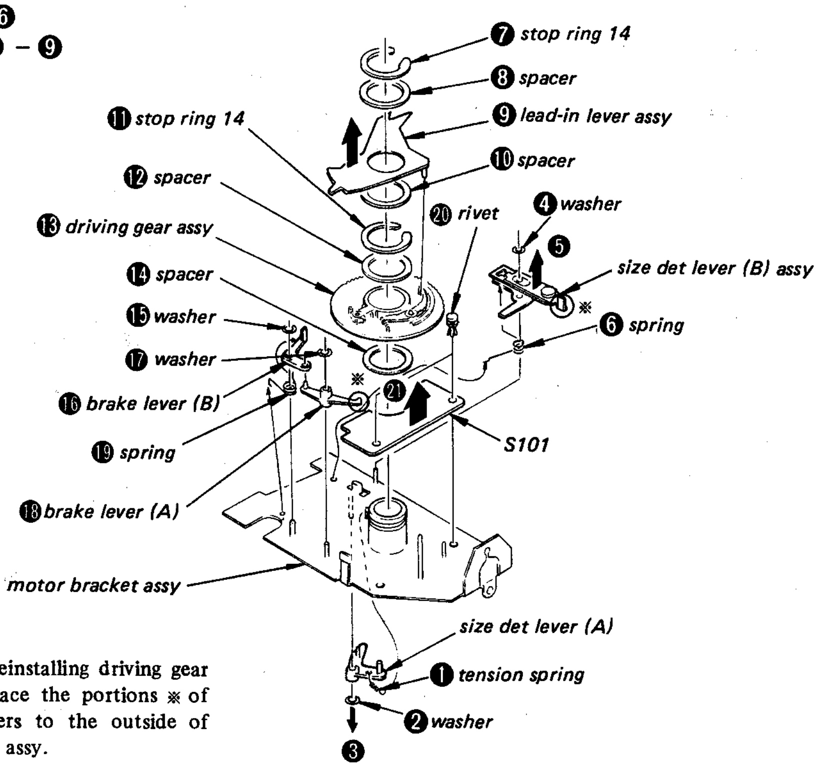
IFC SPRING / TONEARM ASSY

IFC Spring: ① – ⑥
Tonearm Assy: ① – ③, ⑦, ⑧


① P2.6 x 6
③ spring retainer
② shutter plate assy
④ stop ring 4
⑤ W4, middle
⑥ IFC spring
stop ring 10
⑦
IFC spring
IFC cam
–Spring position–
tonearm assy
⑧

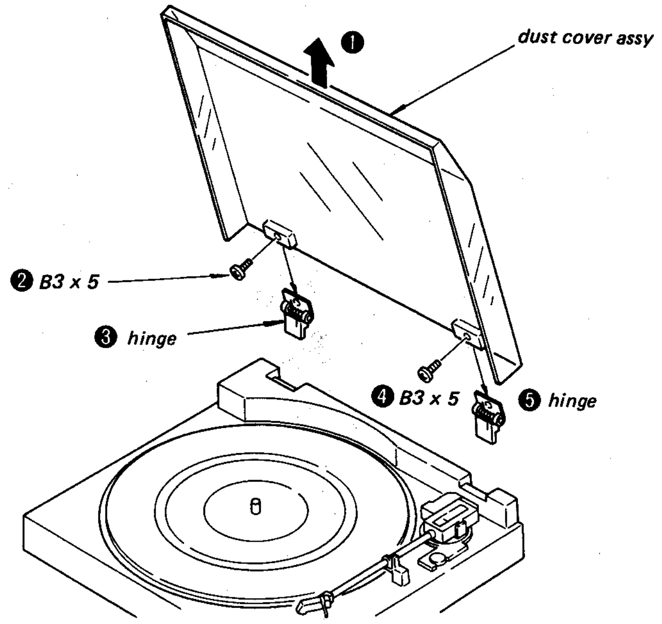
SIZE DET LEVER / BRAKE LEVER / LEAD-IN LEVER ASSY / S101

Size Det Lever: ❶ – ❻
Lead-in Lever Assy: ❼ – ❾
Brake Lever: ❼ – ⓳
S101: ❼ – ㉑


❼ stop ring 14
❽ spacer
❾ lead-in lever assy
❿ spacer
⓫ stop ring 14
⓬ spacer
⓭ driving gear assy
⓴ rivet
❹ washer
❺
size det lever (B) assy
※
⓮ spacer
❻ spring
⓯ washer
⓱ washer
※
㉑
⓰ brake lever (B)
S101
⓳ spring
⓲ brake lever (A)
motor bracket assy
size det lever (A)
❶ tension spring
❷ washer
❸

- When reinstalling driving gear assy, place the portions ※ of the levers to the outside of the gear assy.

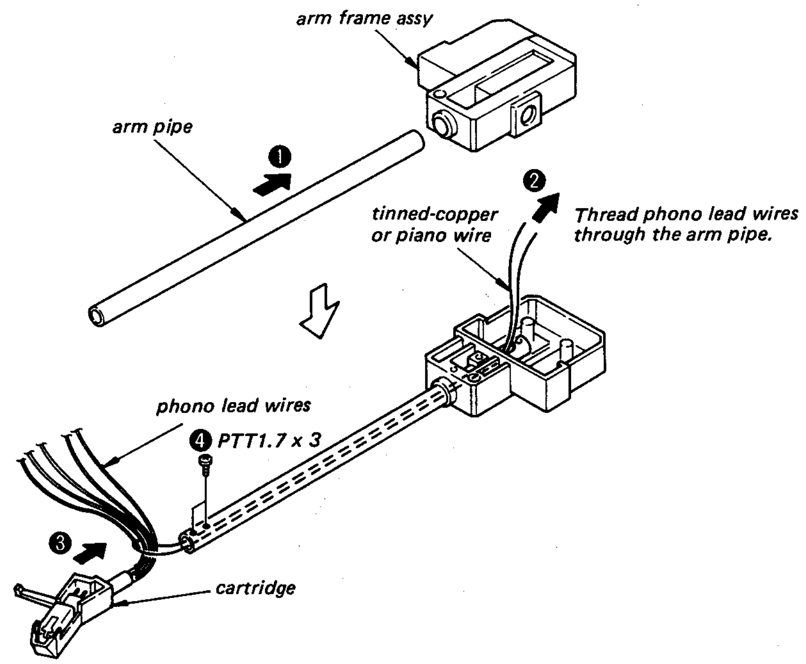
DUST COVER ASSY


❶
dust cover assy
❷ B3 x 5
❸ hinge
❹ B3 x 5
❺ hinge

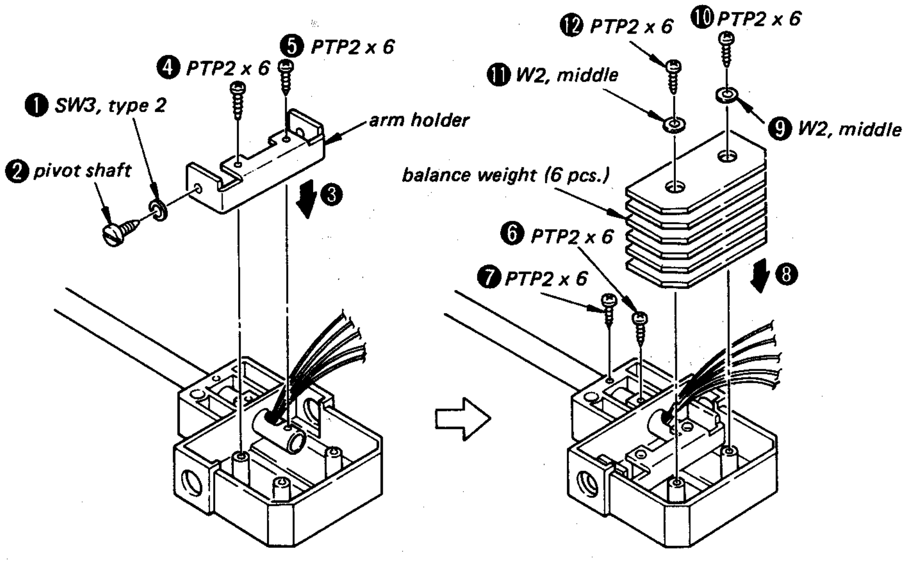
2-2. TONEARM ASSEMBLY

- Follow the assembly procedure in the numerical order given.

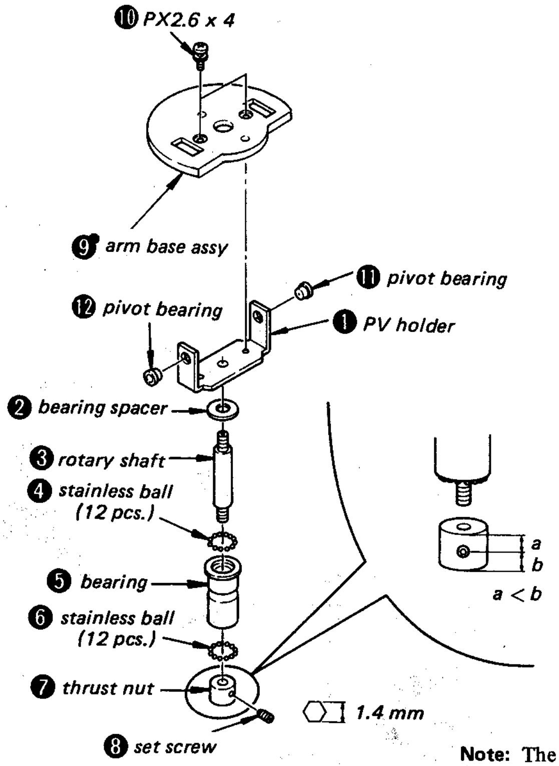
TONEARM ASSY (1)


arm frame assy
arm pipe
❶
❷
tinned-copper or piano wire
Thread phono lead wires through the arm pipe.
phono lead wires
❹ PTT1.7 x 3
❸
cartridge

TONEARM ASSY (2)

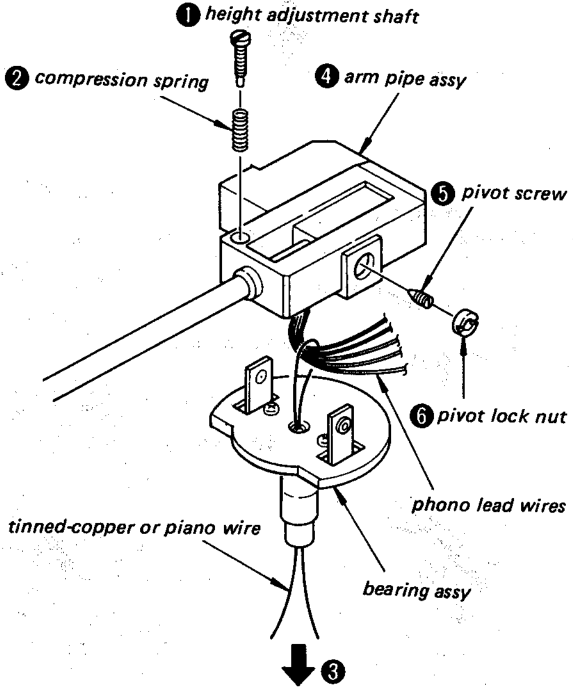

⓬ PTP2 x 6
❿ PTP2 x 6
❺ PTP2 x 6
❹ PTP2 x 6
⓫ W2, middle
❶ SW3, type 2
arm holder
❾ W2, middle
❷ pivot shaft
❸
balance weight (6 pcs.)
❻ PTP2 x 6
❼ PTP2 x 6
❽

TONEARM ASSY (3)


⑩ PX2.6 x 4
⑨ arm base assy
⑪ pivot bearing
⑫ pivot bearing
① PV holder
② bearing spacer
③ rotary shaft
④ stainless ball (12 pcs.)
⑤ bearing
⑥ stainless ball (12 pcs.)
⑦ thrust nut
⑧ set screw
1.4 mm
a
b
a < b

Note: The parts ① – ⑧ are supplied as assembled parts.

TONEARM ASSY (4)


① height adjustment shaft
② compression spring
④ arm pipe assy
⑤ pivot screw
⑥ pivot lock nut
phono lead wires
tinned-copper or piano wire
bearing assy
③

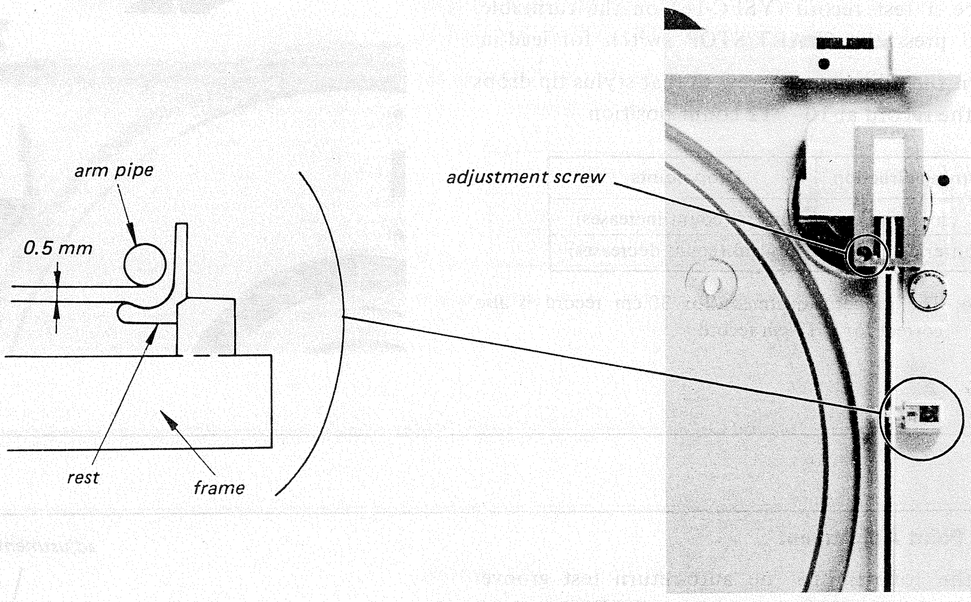
Thread phono lead wires through the bearing assy.

SECTION 3
ADJUSTMENTS

3-1. MECHANICAL ADJUSTMENTS

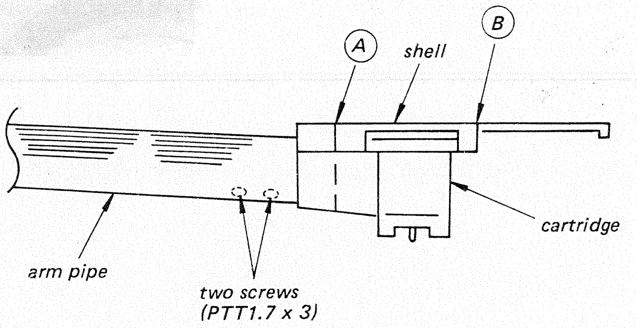
Tonearm Height Adjustment

Adjust the height of the adjustment screw so that the clearance between the rest and the arm pipe is approx. 0.5 mm.


arm pipe
0.5 mm
rest
frame
adjustment screw

Cartridge Level Adjustment

Loosen the two screws and adjust the inclination of the cartridge so that the line of the point Ⓐ and point Ⓑ becomes horizontal against turntable.
After the adjustment, secure the two screws.

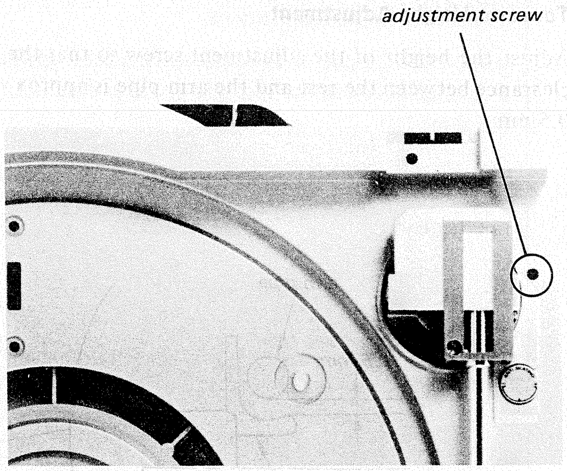

Ⓑ
Ⓐ
shell
cartridge
arm pipe
two screws
(PTT1.7 x 3)

Drop Point Adjustment

1. Set the anti-skating scal to the center.
2. Speed SW: 33 rpm, Size Selection SW: 30 cm
3. Place a test record (YSFC-16) on the turntable. And press the START/STOP switch for lead-in.
4. Turn the adjustment screw so that stylus tip drops on the record at 10 – 12 count position.

Turning direction	Drop points
clockwise	inward (count increases)
counter clockwise	outward (count decreases)

Note: The proper adjustment for 30 cm record is also correct for a 17 cm record.

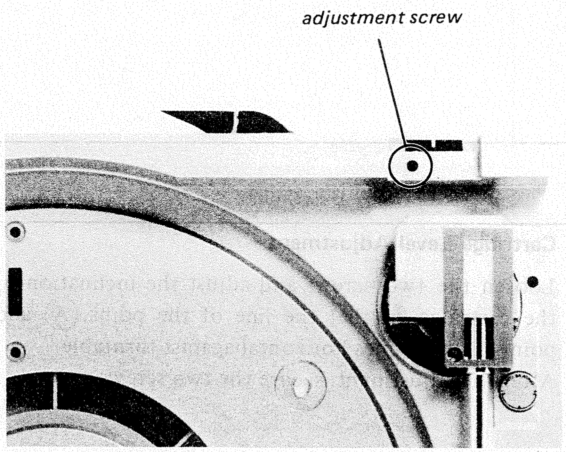


Return Point Adjustment

Bring the tonearm to the auto-return test groove (inside position) of the test record (YSFC-16), and adjust the screw for the tonearm at count 3 to 12.

Turning direction	Drop points
clockwise	inward (count increases)
counter clockwise	outward (count decreases)

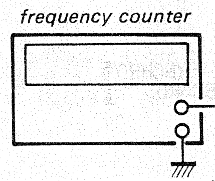
Note: The normal auto-return position is between 59 mm (2-3/8") and 64 mm (2-1/2") from the center shaft.

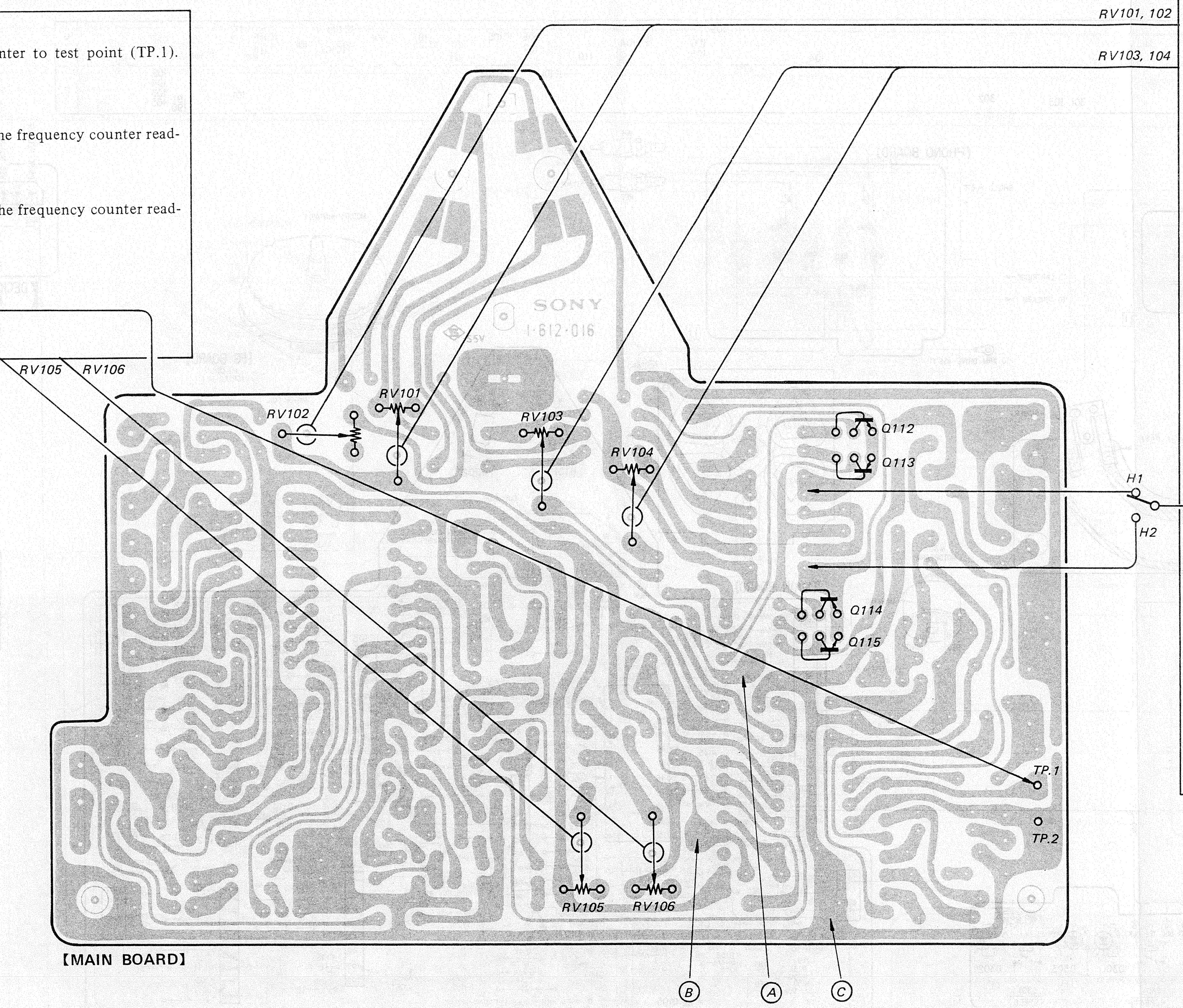


3-2. ELECTRICAL ADJUSTMENTS

Speed Adjustment

1. Connect frequency counter to test point (TP.1).
2. START switch: ON
3. SPEED switch: 45 rpm
4. Adjust RV105 so that the frequency counter reading is 95.72 – 96.26 Hz.
5. SPEED switch: 33 rpm
6. Adjust RV106 so that the frequency counter reading is 70.90 – 71.32 Hz.

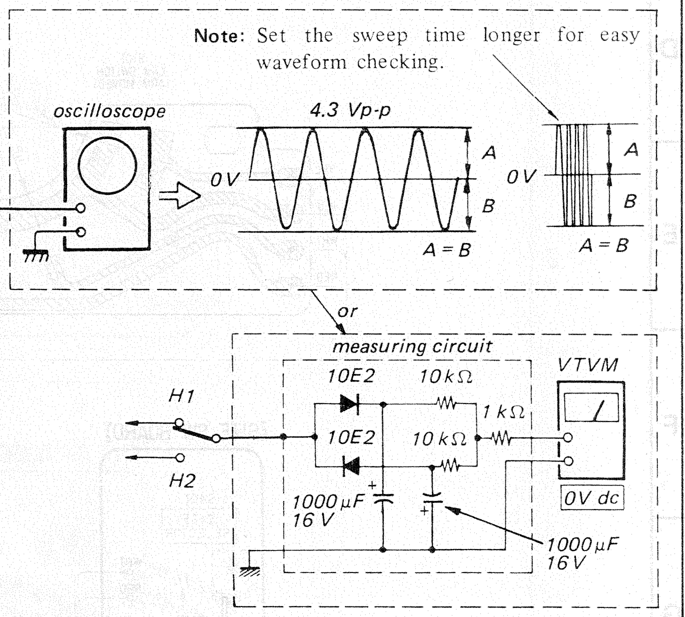

frequency counter


RV101, 102
RV103, 104
RV105
RV106
RV102
RV101
RV103
RV104
SONY
1-612-016
Q112
Q113
Q114
Q115
H1
H2
TP.1
TP.2
RV105
RV106
【MAIN BOARD】
Ⓑ
Ⓐ
Ⓒ

Gain/Offset Adjustment

1. Connect IC102 pin ⑤ to the ground pattern. (Connect the pattern Ⓑ to Ⓒ with a jumper lead.)
2. Apply DC 1 V to the emitter of Q103. (Pattern Ⓐ).
3. Adjust RV101 (H1) and RV102 (H2) so that the emitter voltage of Q112, 113 (H1) and Q114, 115 (H2) are 4.3 Vp-p. . . . **Gain Adjustment**
4. Adjust RV103 (H1) and RV104 (H2) so that the emitter waveforms of Q112, 113 (H1) and Q114, 115 (H2) are as shown below (or so that DC potensial is 0 V). . . . **Offset Adjustment**
5. After adjustment, remove the jumper lead connected in step 1.

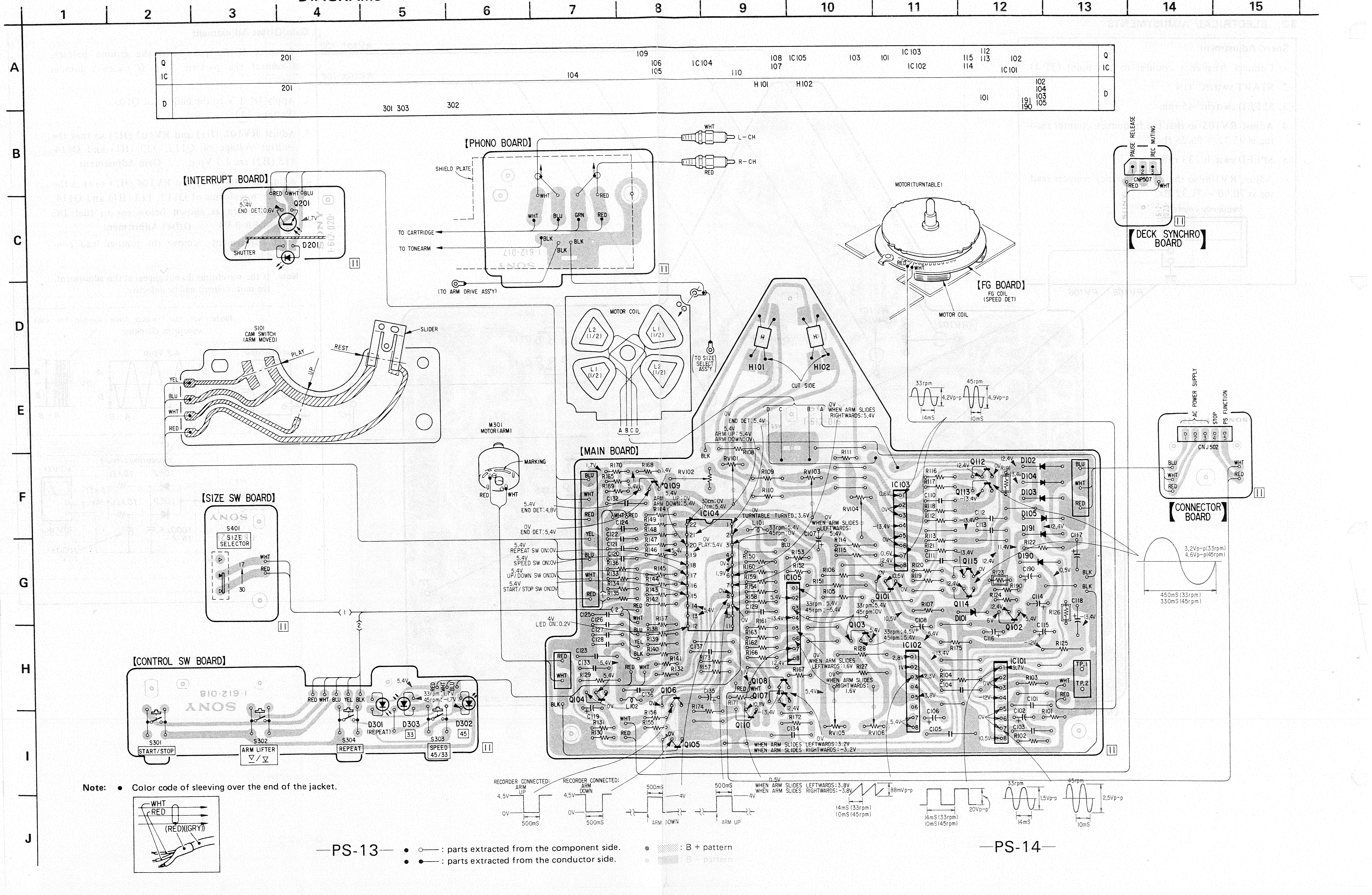
Note: If the waveforms do not appear at this adjustment, the motor circuit will be defective.


Note: Set the sweep time longer for easy waveform checking.

oscilloscope
4.3 Vp-p
0 V
A
B
A = B
0 V
A
B
A = B
or
measuring circuit
H1
H2
10E2
10 kΩ
1 kΩ
10E2
10 kΩ
1000 μF
16 V
1000 μF
16 V
VTVM
0V dc

SECTION 4
DIAGRAMS

4-1. MOUNTING DIAGRAM

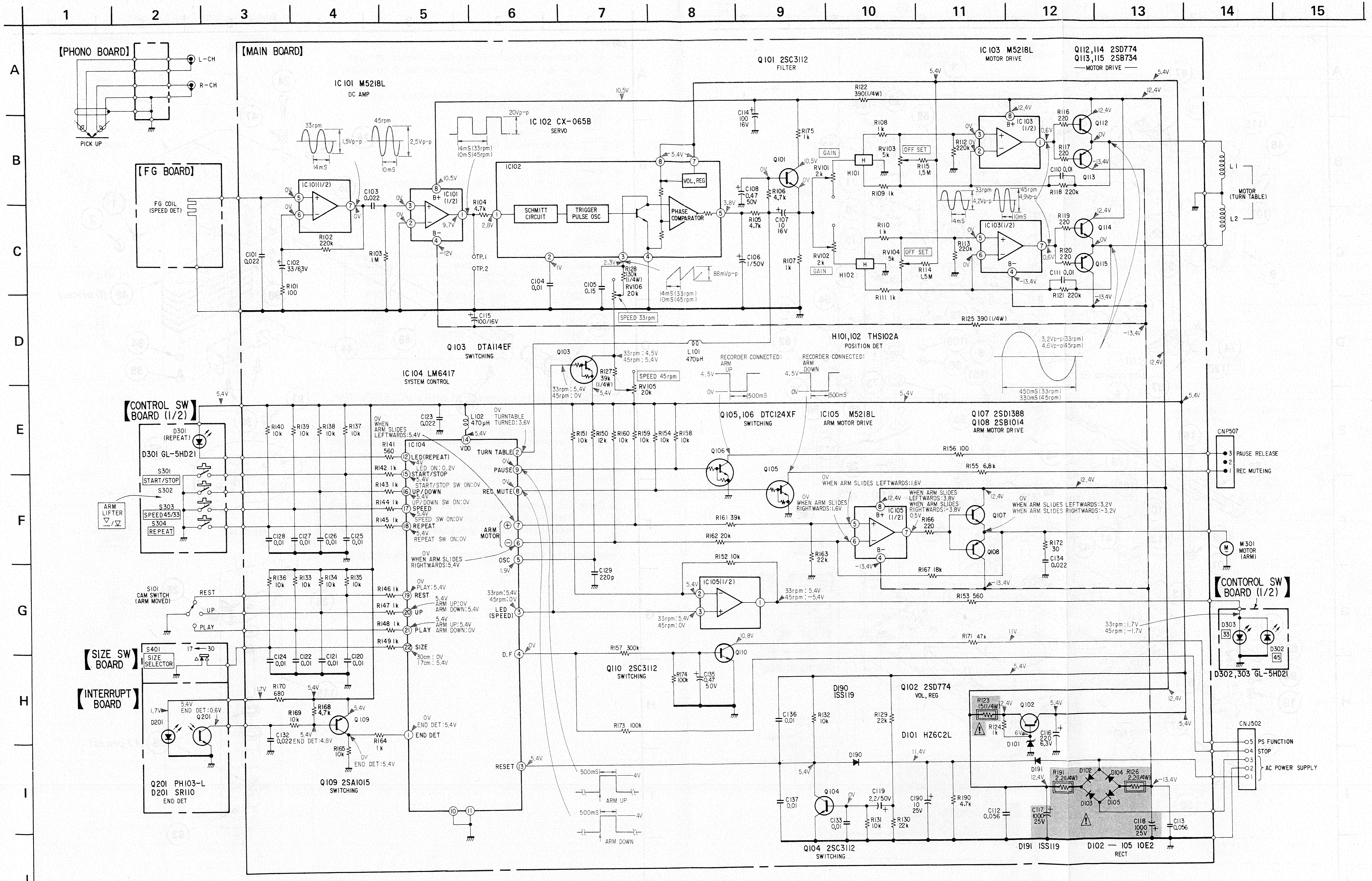

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
A
B
C
D
E
F
G
H
I
J
Q
IC
D
201
104
109
106
105
IC104
110
108
107
IC105
103
101
IC103
IC102
115
114
112
113
102
IC101
H101
H102
301 303
302
101
191
190
102
104
103
105
[PHONO BOARD]
[INTERRUPT BOARD]
SHIELD PLATE
WHT
RED
L-CH
R-CH
BLU
GRN
BLK
TO CARTRIDGE
TO TONEARM
(TO ARM DRIVE ASS'Y)
5.4V
END DET:0.6V
Q201
1.7V
D201
SHUTTER
MOTOR(TURNTABLE)
[FG BOARD]
FG COIL
(SPEED DET)
MOTOR COIL
[DECK SYNCHRO BOARD]
PAUSE RELEASE
REC MUTING
CNP507
S101
CAM SWITCH
(ARM MOVED)
SLIDER
REST
PLAY
UP
YEL
(TO SIZE SELECT ASS'Y)
L2 (1/2)
L1 (1/2)
H101
H102
CUT SIDE
33rpm
45rpm
4.2Vp-p
4.9Vp-p
14mS
10mS
AC POWER SUPPLY
STOP
PS FUNCTION
CNJ502
[CONNECTOR BOARD]
M301
MOTOR(ARM)
MARKING
[MAIN BOARD]
[SIZE SW BOARD]
S401
SIZE SELECTOR
17
30
END DET:5.4V
ARM UP:5.4V
ARM DOWN:0V
WHEN ARM SLIDES RIGHTWARDS:5.4V
END DET:4.8V
END DET:5.4V
REPEAT SW ON:0V
SPEED SW ON:0V
UP/DOWN SW ON:0V
START/STOP SW ON:0V
LED ON:0.2V
TURNTABLE TURNED:3.6V
WHEN ARM SLIDES LEFTWARDS:5.4V
Q109
Q112
Q113
Q115
Q114
Q101
Q103
Q102
Q104
Q106
Q107
Q108
Q110
Q105
D102
D104
D103
D105
D191
D190
D101
IC101
IC102
IC103
IC104
IC105
RV101
RV102
RV103
RV104
RV105
RV106
TP.1
TP.2
3.2Vp-p(33rpm)
4.6Vp-p(45rpm)
450mS(33rpm)
330mS(45rpm)
WHEN ARM SLIDES LEFTWARDS:3.2V
WHEN ARM SLIDES RIGHTWARDS:-3.2V
[CONTROL SW BOARD]
S301
START/STOP
S302
ARM LIFTER
S304
REPEAT
S303
SPEED 45/33
D301 (REPEAT)
D303
33
D302
45
RECORDER CONNECTED: ARM UP
RECORDER CONNECTED: ARM DOWN
500mS
ARM DOWN
ARM UP
WHEN ARM SLIDES LEFTWARDS:3.8V
WHEN ARM SLIDES RIGHTWARDS:-3.8V
88mVp-p
14mS(33rpm)
10mS(45rpm)
20Vp-p
1.5Vp-p
2.5Vp-p
WHT
RED
(RED)((GRY))

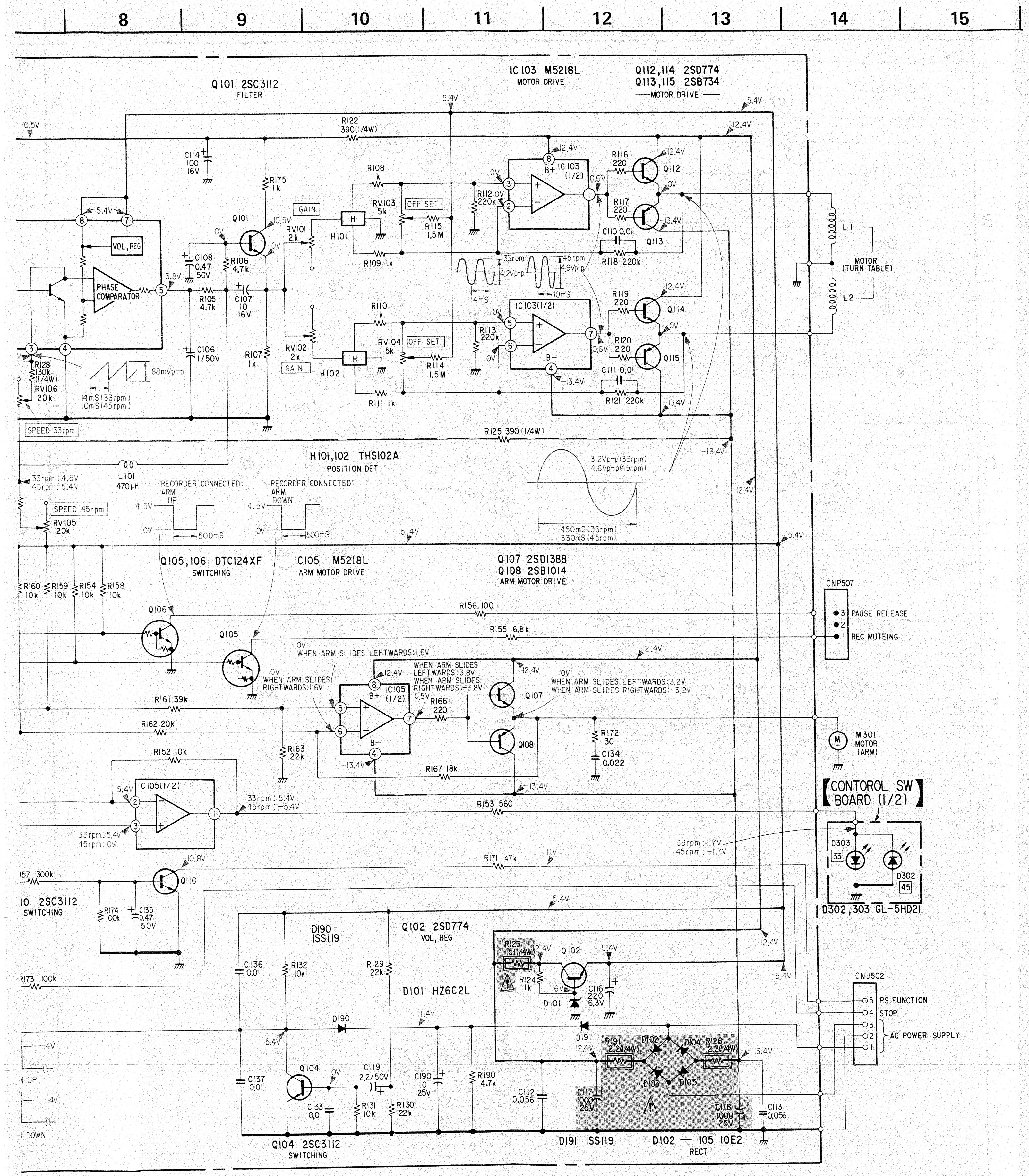
Note: • Color code of sleeving over the end of the jacket.

• ○—: parts extracted from the component side.
• ●—: parts extracted from the conductor side.

▨ : B + pattern
▨ : B – pattern

4-2. SCHEMATIC DIAGRAM


1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
A
B
C
D
E
F
G
H
I
J
[PHONO BOARD]
L-CH
R-CH
PICK UP
[MAIN BOARD]
[FG BOARD]
FG COIL (SPEED DET)
IC101 M5218L
DC AMP
IC101(1/2)
IC101 (1/2)
33rpm
1.5Vp-p
14mS
45rpm
2.5Vp-p
10mS
20Vp-p
14mS(33rpm)
10mS(45rpm)
IC102 CX-065B
SERVO
IC102
SCHMITT CIRCUIT
TRIGGER PULSE OSC
VOL. REG
PHASE COMPARATOR
88mVp-p
SPEED 33rpm
SPEED 45rpm
Q101 2SC3112
FILTER
IC103 M5218L
MOTOR DRIVE
Q112,114 2SD774
Q113,115 2SB734
MOTOR DRIVE
IC103 (1/2)
IC103(1/2)
GAIN
OFF SET
H101
H102
MOTOR (TURN TABLE)
L1
L2
3.2Vp-p(33rpm)
4.6Vp-p(45rpm)
450mS(33rpm)
330mS(45rpm)
Q103 DTA114EF
SWITCHING
IC104 LM6417
SYSTEM CONTROL
L101 470μH
H101,102 THS102A
POSITION DET
RECORDER CONNECTED: ARM UP
RECORDER CONNECTED: ARM DOWN
500mS
[CONTROL SW BOARD (1/2)]
D301 (REPEAT)
D301 GL-5HD21
S301 START/STOP
S302
S303 SPEED45/33
S304 REPEAT
ARM LIFTER
LED(REPEAT)
START/STOP
UP/DOWN
SPEED
REPEAT
TURN TABLE
PAUSE
REC MUTE
ARM MOTOR
OSC
LED (SPEED)
D.F
RESET
Q105,106 DTC124XF
SWITCHING
IC105 M5218L
ARM MOTOR DRIVE
Q107 2SD1388
Q108 2SB1014
ARM MOTOR DRIVE
IC105 (1/2)
IC105(1/2)
WHEN ARM SLIDES LEFTWARDS:1.6V
WHEN ARM SLIDES RIGHTWARDS:1.6V
CNP507
PAUSE RELEASE
REC MUTEING
M301 MOTOR (ARM)
S101 CAM SWITCH (ARM MOVED)
REST
UP
PLAY
SIZE
30cm: 0V
17cm: 5.4V
END DET
[SIZE SW BOARD]
S401 SIZE SELECTOR
[INTERRUPT BOARD]
Q201 PH103-L
D201 SR110
END DET
Q109 2SA1015
SWITCHING
Q110 2SC3112
SWITCHING
[CONTOROL SW BOARD (1/2)]
D303
D302
D302,303 GL-5HD21
D190 ISS119
Q102 2SD774
VOL. REG
D101 HZ6C2L
CNJ502
PS FUNCTION
STOP
AC POWER SUPPLY
Q104 2SC3112
SWITCHING
D191 ISS119
D102 — 105 10E2
RECT
ARM UP
ARM DOWN


8
9
10
11
12
13
14
15
Q101 2SC3112 FILTER
IC103 M5218L MOTOR DRIVE
Q112,114 2SD774
Q113,115 2SB734
MOTOR DRIVE
R122 390(1/4W)
C114 100 16V
R175 1k
R108 1k
RV103 5k
OFF SET
R112 220k
IC103 (1/2)
R116 220
Q112
R117 220
Q113
C110 0.01
R118 220k
L1
L2
MOTOR (TURN TABLE)
PHASE COMPARATOR
VOL, REG
GAIN
H101
H102
RV101 2k
C108 0.47 50V
R106 4.7k
R105 4.7k
C107 10 16V
R109 1k
R115 1.5M
33rpm 4.2Vp-p
45rpm 4.9Vp-p
14mS
10mS
R110 1k
RV104 5k
R113 220k
IC103(1/2)
R119 220
Q114
R120 220
Q115
C111 0.01
R121 220k
R114 1.5M
R111 1k
RV102 2k
R107 1k
C106 1/50V
R128 130k (1/4W)
RV106 20k
88mVp-p
14mS(33rpm)
10mS(45rpm)
SPEED 33rpm
R125 390(1/4W)
H101,102 THS102A POSITION DET
3.2Vp-p(33rpm)
4.6Vp-p(45rpm)
450mS(33rpm)
330mS(45rpm)
L101 470μH
33rpm: 4.5V
45rpm: 5.4V
RECORDER CONNECTED: ARM UP
RECORDER CONNECTED: ARM DOWN
500mS
SPEED 45rpm
RV105 20k
Q105,106 DTC124XF SWITCHING
IC105 M5218L ARM MOTOR DRIVE
Q107 2SD1388
Q108 2SB1014
ARM MOTOR DRIVE
R160 10k
R159 10k
R154 10k
R158 10k
Q106
Q105
R156 100
R155 6.8k
CNP507
PAUSE RELEASE
REC MUTEING
0V WHEN ARM SLIDES LEFTWARDS:1.6V
0V WHEN ARM SLIDES RIGHTWARDS:1.6V
WHEN ARM SLIDES LEFTWARDS:3.8V
WHEN ARM SLIDES RIGHTWARDS:-3.8V
IC105 (1/2)
R166 220
Q107
0V WHEN ARM SLIDES LEFTWARDS:3.2V
WHEN ARM SLIDES RIGHTWARDS:-3.2V
R161 39k
R162 20k
R163 22k
Q108
R172 30
C134 0.022
M301 MOTOR (ARM)
R167 18k
R152 10k
IC105(1/2)
33rpm: 5.4V
45rpm: -5.4V
33rpm: 5.4V
45rpm: 0V
R153 560
CONTOROL SW BOARD (1/2)
D303
D302
33rpm: 1.7V
45rpm: -1.7V
R171 47k
157 300k
Q110
10 2SC3112 SWITCHING
R174 100k
C135 0.47 50V
D302,303 GL-5HD21
D190 1SS119
Q102 2SD774 VOL, REG
R123 15(1/4W)
Q102
R124 1k
C116 220 6.3V
D101
D101 HZ6C2L
C136 0.01
R132 10k
R129 22k
CNJ502
PS FUNCTION
STOP
AC POWER SUPPLY
R173 100k
D190
D191
R191 2.2(1/4W)
D102
D104
R126 2.2(1/4W)
D103
D105
Q104
C137 0.01
C119 2.2/50V
C133 0.01
R131 10k
R130 22k
C190 10 25V
R190 4.7k
C112 0.056
C117 1000 25V
C118 1000 25V
C113 0.056
Q104 2SC3112 SWITCHING
D191 1SS119
D102 — 105 10E2 RECT
UP
DOWN

Note:

- All capacitors are in μF unless otherwise noted. pF: μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in ohms, $^1/_6$ W unless otherwise noted. kΩ: 1000 Ω, MΩ: 1000 kΩ
- ▭ : nonflammable resistor.
- ▭ : panel designation.
- ▭ : adjustment for repair.
- ▬▬ : B+ bus.
- ▬ ▬ ▬ : B– bus.
- Voltages are dc with respect to ground unless otherwise noted.
- Readings are taken under no-signal conditions with a VOM.

- Switch

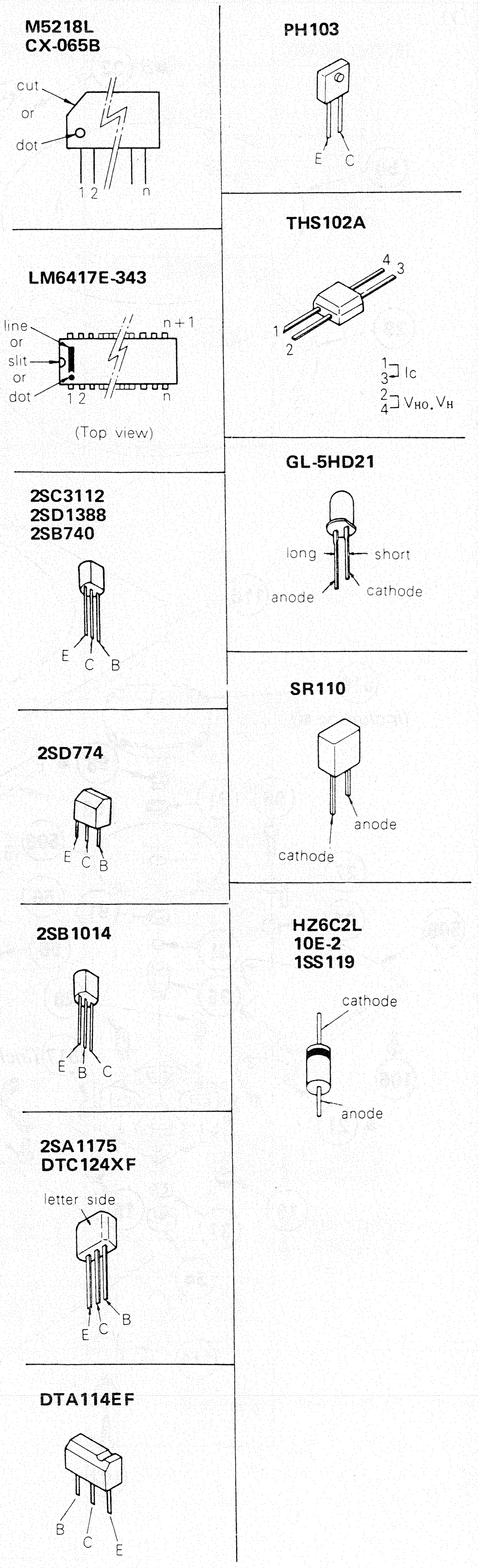
Ref. No.	Switch	Position
S301	START/STOP	OFF
S302	ARM LIFTER	OFF
S303	SPEED	OFF
S304	REPEAT	OFF
S401	SIZE SELECTOR	30 cm
S901	POWER	OFF

Note: Voltages are measured with a VOM (50kΩ/V).

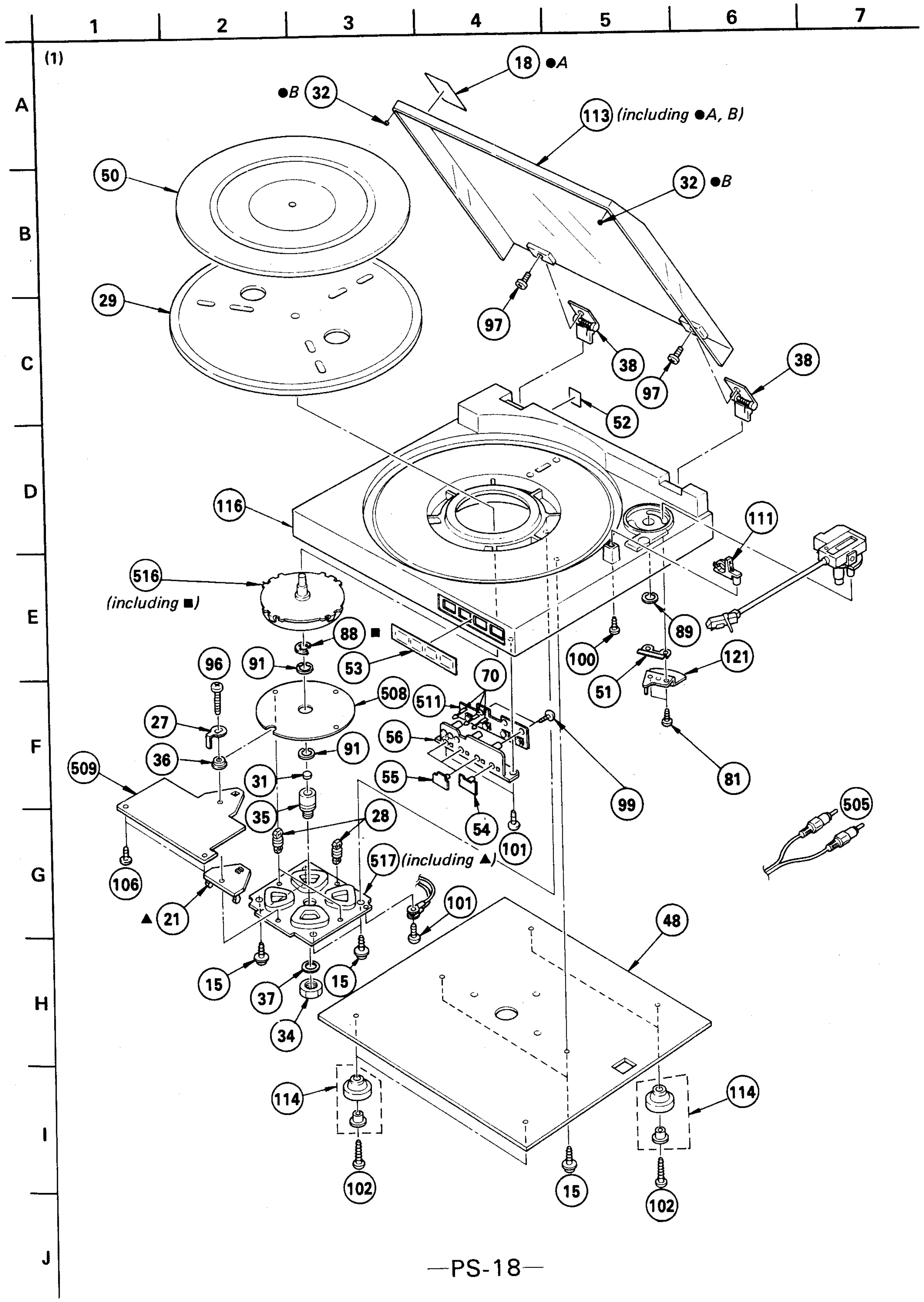
Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

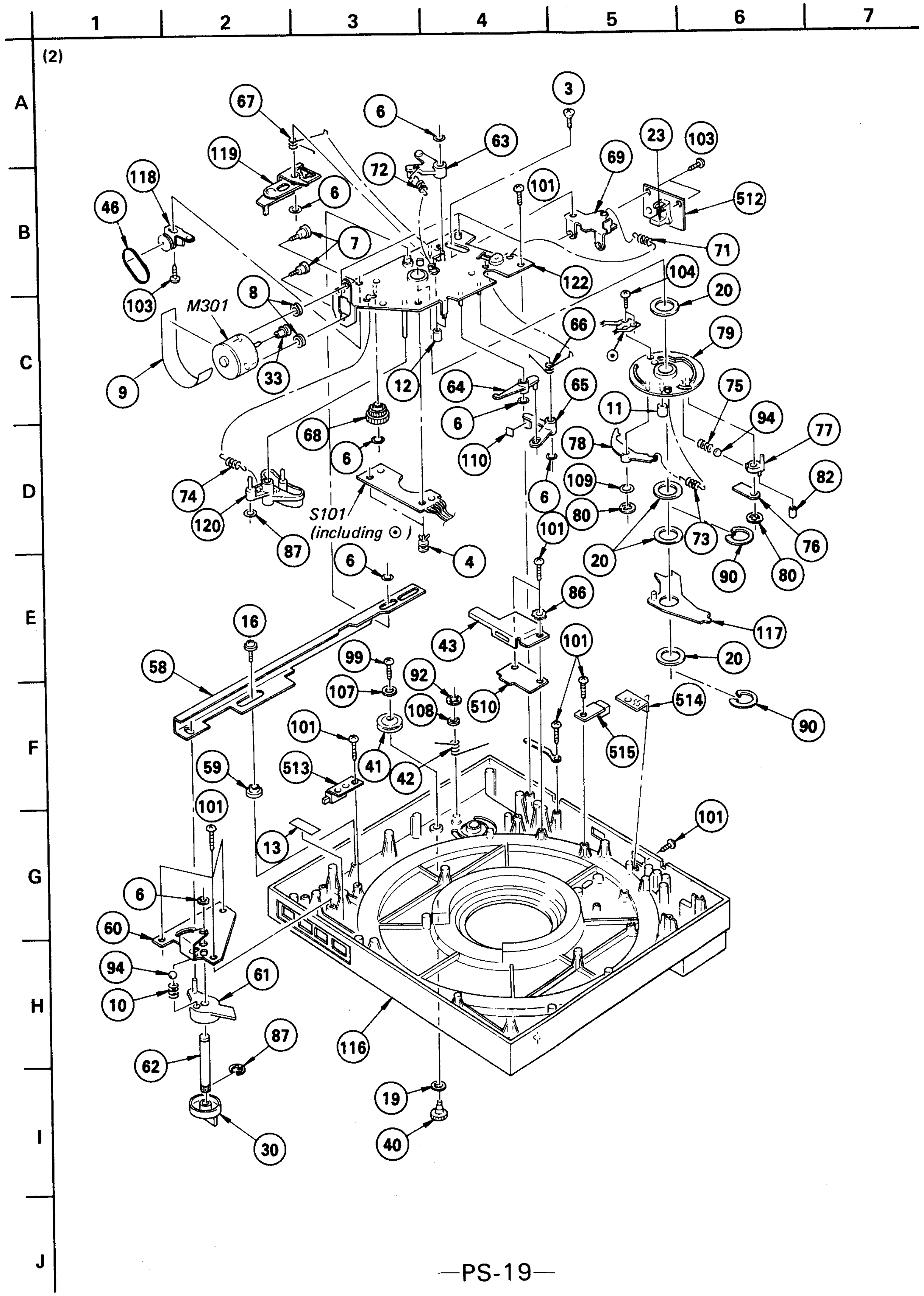
Note: Les composants identifiés par un tramé et une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

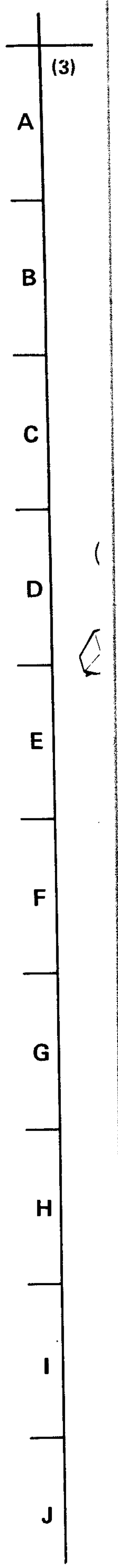
Semiconductor Lead Layouts

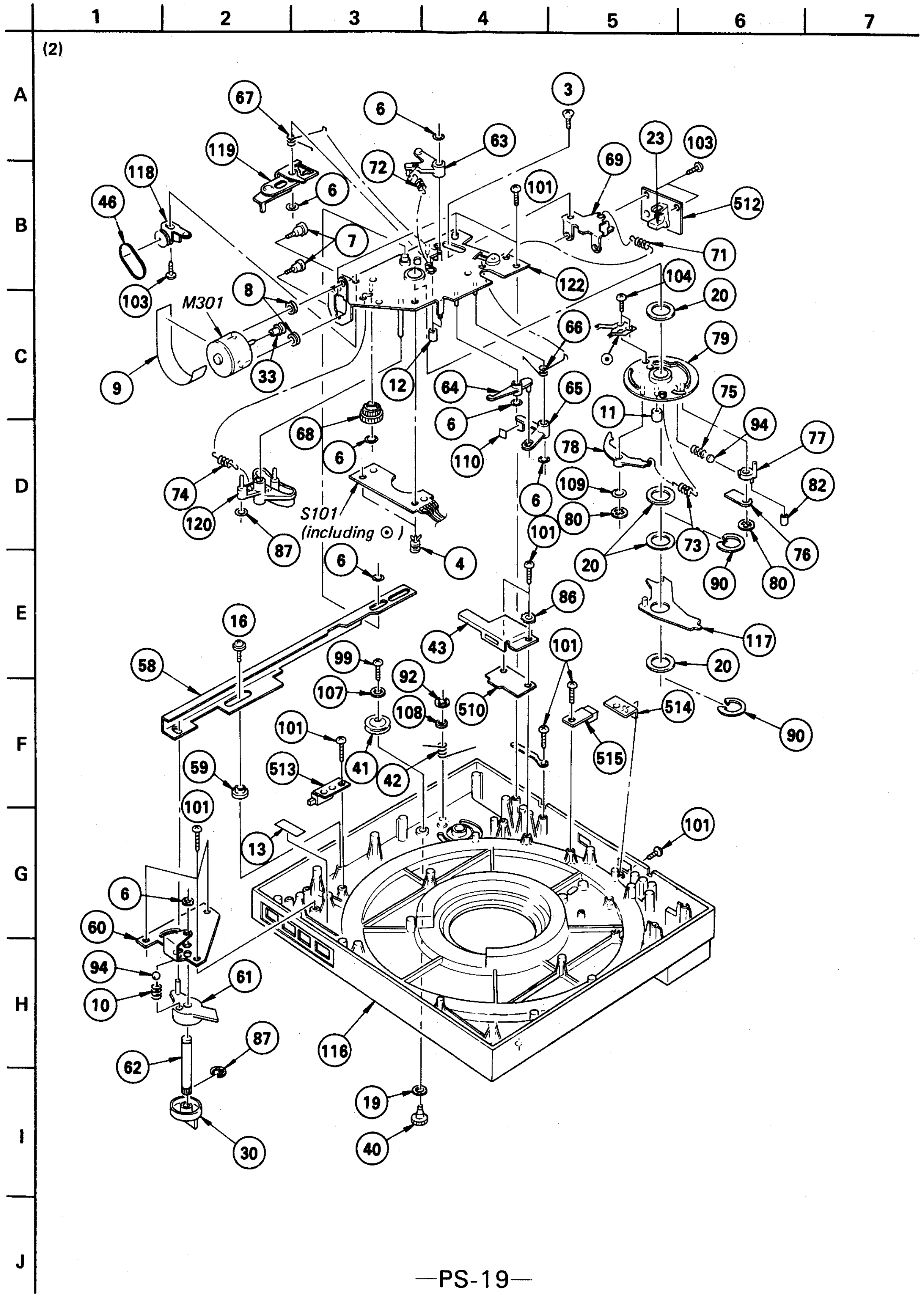

M5218L
CX-065B
cut
or
dot
1 2
n
PH103
E C
THS102A
1
2
3
4
1 } Ic
3
2 } V_HO, V_H
4
LM6417E-343
line
or
slit
or
dot
n+1
1 2
n
(Top view)
GL-5HD21
long
short
anode
cathode
2SC3112
2SD1388
2SB740
E C B
SR110
anode
cathode
2SD774
E C B
2SB1014
E B C
HZ6C2L
10E-2
1SS119
cathode
anode
2SA1175
DTC124XF
letter side
E C B
DTA114EF
B C E

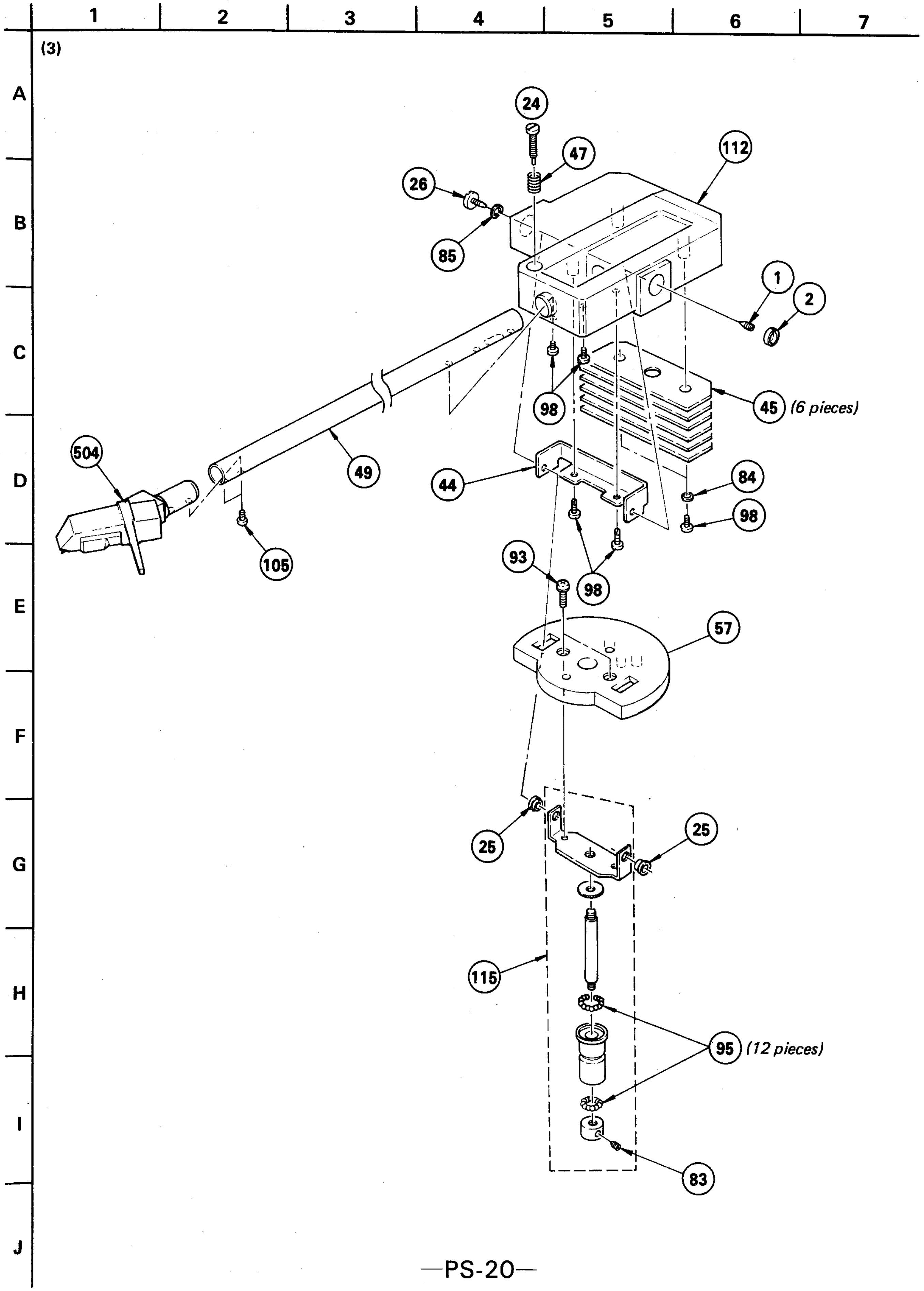
SECTION 5
EXPLODED VIEWS AND PARTS LIST


1
2
3
4
5
6
7
A
B
C
D
E
F
G
H
I
J
(1)
18 ●A
●B 32
113 (including ●A, B)
50
32 ●B
29
97
38
97
38
52
116
111
516 (including ■)
88 ■
96
91
53
70
100
89
121
27
508
511
51
56
36
91
81
509
31
55
99
35
28
54
101
505
106
517 (including ▲)
▲ 21
101
48
15
15
37
34
114
114
102
15
102


1
2
3
4
5
6
7
A
B
C
D
E
F
G
H
I
J
(2)
67
6
3
63
119
72
118
6
101
69
23
103
512
46
7
71
103
8
M301
122
104
20
66
79
9
33
12
64
65
75
11
6
94
77
68
78
6
110
82
74
109
120
S101 (including ⊙)
6
80
73
76
87
101
20
90
80
4
6
86
117
16
99
43
101
58
92
20
107
108
510
514
101
90
41
515
59
513
42
101
101
13
6
60
94
61
10
116
87
62
19
30
40


(3)
A
B
C
D
E
F
G
H
I
J


(2)
A
B
C
D
E
F
G
H
I
J
M301
S101
(including ⊙)


(3)
A
B
C
D
E
F
G
H
I
J
45 (6 pieces)
95 (12 pieces)

GENERAL SECTION

No.	Part No.	Description
1	2-203-518-61	SCREW, PIVOT
2	2-203-519-00	NUT (A), LOCK, PIVOT
3	♠;3-465-048-00	SHAFT
4	3-531-576-11	RIVET
5	3-558-708-01	WASHER, STOPPER
6	3-558-708-21	WASHER, STOPPER
7	3-570-027-00	SCREW, MOTOR
8	3-570-118-00	CUSHION, MOTOR
9	3-575-442-00	PLATE, SHIELD, MOTOR
10	3-576-098-00	SPRING, COMPRESSION
11	3-579-008-00	RUBBER (S1), BRAKE
12	3-579-032-00	RUBBER, BRAKE
13	3-701-030-00	LABEL, SERIAL NUMBER
14	....	
15	3-703-136-00	SCREW, TAPPING
16	3-703-137-00	SCREW, TAPPING
17	....	
18	3-703-705-01	STICKER, SONY SYMBOL (30)
19	4-844-041-11	WASHER, (N)
20	4-853-222-00	SPACER
21	4-857-642-00	HOLDER, PC BOARD
22	....	
23	4-869-965-00	PLATE, SLIT
24	♠;4-873-347-00	SHAFT, ADJUSTMENT, HIGH
25	4-877-814-00	BEARING, PIVOT
26	4-877-816-00	SHAFT, PIVOT
27	♠;4-881-629-00	PLATE (A), GROUND
28	4-881-636-11	SUPPORT (TMD), PC
29	4-883-720-00	TURNTABLE
30	4-885-134-00	KNOB, SELECTOR
31	4-885-135-00	RETAINER, THRUST
32	4-885-183-00	CUSHION (D)
33	4-885-704-03	PULLEY, MOTOR
34	♠;4-903-330-01	NUT (TMD), BEARING
35	4-885-724-00	BEARING
36	4-885-727-00	SPACER
37	4-885-728-00	PACKING
38	4-885-731-11	HINGE
39	....	
40	4-887-902-00	KNOB, IFC
41	♠;4-887-903-00	CAM, IFC
42	4-887-904-00	SPRING
43	♠;4-887-905-00	PLATE, SHIELD
44	♠;4-887-906-00	HOLDER, ARM
45	♠;4-887-907-00	WEIGHT, BALANCE

GENERAL SECTION

No.	Part No.	Description
46	4-887-915-00	BELT, DRIVING
47	4-887-918-00	SPRING, COMPRESSION
48	♠;4-887-920-00	BOARD, BOTTOM
49	4-887-922-00	PIPE, ARM
50	4-887-941-11	SHEET, TURNTABLE
51	4-887-955-00	RETAINER, SPRING
52	4-903-504-01	LABEL, MODEL NUMBER (ALL)
53	4-904-201-01	SHEET, CONTROL BUTTON
54	♠;4-904-202-01	BUTTON, START
55	♠;4-904-203-01	BUTTON, CONTROL
56	♠;4-904-204-01	HOLDER, CONTROL BUTTON
57	♠;4-904-205-01	BASE, ARM
58	♠;4-904-206-01	SLIDER, SELECTION
59	4-904-207-01	SPACER, SLIDER
60	♠;4-904-208-01	BRACKET, SIZE SELECTION
61	4-904-209-01	LEVER, SIZE SELECTION
62	♠;4-904-210-01	SHAFT, SELECTOR KNOB
63	4-904-211-01	LEVER (A), SIZE DETECTION
64	4-904-212-01	LEVER (A), BRAKE
65	4-904-213-01	LEVER (B), BRAKE
66	4-904-215-01	SPRING
67	4-904-216-01	SPRING
68	4-904-217-01	GEAR, MIDWAY
69	♠;4-904-218-01	BRACKET, END DETECTION
70	♠;4-904-219-01	SPACER, LED
71	4-904-220-01	SPRING, TENSION
72	4-904-221-01	SPRING, TENSION
73	4-904-222-01	SPRING, TENSION
74	4-904-223-01	SPRING, TENSION
75	4-904-224-01	SPRING, COMPRESSION
76	♠;4-904-225-01	BRACKET, CAM
77	4-904-226-01	CAM, REVERSE
78	4-904-227-01	LEVER, CLUTCH
79	4-904-228-01	GEAR, DRIVING
80	4-904-252-01	RING, STOPPER (CA-1.5)
81	7-685-533-19	+BTP 2.6×6
82	4-904-256-01	RUBBER, RETURN
83	7-621-712-17	SET-SCREW,SLOT 2.6X2 CUP POINT
84	7-623-105-12	W 2,MIDDLE
85	7-623-208-22	SW 3,TYPE 2
86	7-623-422-07	LW 3, TYPE B
87	7-624-105-04	STOP RING 2.3, TYPE -E
88	7-624-133-24	STOP RING 7, TYPE-CE
89	7-624-133-54	STOP RING 10, TYPE-CE
90	7-624-133-84	STOP RING 14, TYPE-CE

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- All resistors are in ohms.
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COILS

- MMH : mH, UH : μH

SEMICONDUCTORS

In each case, U : μ, for example:
UA···: μA···, UPA···: μPA···, UPC···: μPC,
UPD···: μPD···

GENERAL SECTION

No.	Part No.	Description
91	7-624-133-94	STOP RING 15, TYPE-CE
92	7-624-190-31	STOP RING 4, TYPE-CS
93	7-628-253-95	SCREW +PS 2.6X4
94	7-671-113-02	BALL, STEEL 3MM
95	7-671-151-01	STAINLESS, BALL 1/16INCH
96	7-682-149-13	SCREW +P 3X10
97	7-682-546-04	SCREW +B 3X5
98	7-685-104-14	SCREW +P 2X6 TYPE2 SLIT
99	7-685-133-14	SCREW +P 2.6X6 TYPE1
100	7-685-134-14	SCREW +P 2.6X8 TYPE2 NON-SLIT
101	7-685-647-14	SCREW +BVTP 3X10 TYPE2 N-S
102	7-685-651-11	SCREW +BVTP 3X20 TYPE1
103	7-685-791-04	SCREW +PTT 2.6X5 (S)
104	7-685-799-04	SCREW +PTT 1.7X2.5
105	7-685-799-74	SCREW +PTT 1.7X3
106	7-685-871-01	SCREW +BVTT 3X6 (S)
107	7-688-002-11	W 2.6, MIDDLE
108	7-688-004-11	W 4, MIDDLE
109	7-688-008-04	W 1.7 SMALL
110	9-911-850-XX	FELT, BRAKE
111	X-4879-707-0	REST SUB ASSY, ARM
112	X-4887-903-0	FRAME ASSY, ARM
113	X-4887-907-0	COVER ASSY, DUST
114	X-4887-908-0	INSULATOR ASSY
115	X-4887-909-1	BEARING ASSY
116	X-4903-501-1	FRAME ASSY
117	♠;X-4904-202-1	LEVER ASSY, LEAD-IN
118	X-4904-203-1	WORM ASSY
119	♠;X-4904-204-1	LEVER (B) ASSY, SIZE DETECTION
120	X-4904-205-1	LIFTER SUB ASSY
121	♠;X-4904-208-1	SHUTTER ASSY
122	♠;X-4904-209-1	BRACKET ASSY, MOTOR

ELECTRICAL PARTS

Ref.No.	Part No.	Description			
501	♠;1-508-799-00	BASE POST (U TYPE)			
502	••••••••••••				
503	♠;1-508-804-00	U TYPE BASE POST			
504	1-549-116-00	CARTRIDGE (VL-43GS)			
505	1-551-294-00	CORD			
506	1-562-067-00	SOCKET, CONNECTOR 5P (CNJ502)			
507	1-564-358-00	PIN, CONNECTOR 3P (CNP507)			
508	♠;1-608-883-00	PC BOARD, FG			
509	♠;1-612-016-11	PC BOARD, MAIN			
510	♠;1-612-017-11	PC BOARD, PHONO			
511	♠;1-612-018-11	PC BOARD, CONTROL SW			
512	♠;1-612-020-11	PC BOARD, INTERRUPT			
513	♠;1-612-021-11	PC BOARD, SIZE SW			
514	♠;1-612-022-11	PC BOARD, CONNECTOR			
515	♠;1-612-023-11	PC BOARD, DECK SYNCHRO			
516	A-4608-232-A	ROTOR ASSY			
517	A-4608-233-A	STATOR ASSY			
C101	1-161-494-00	CERAMIC	0.022MF	30%	25V
C102	1-123-645-00	ELECT	33MF	20%	6.3V
C103	1-161-494-00	CERAMIC	0.022MF	30%	25V
C104	1-162-113-00	CERAMIC	0.01MF	30%	16V
C105	1-130-885-00	FILM	0.15MF	5%	50V
C106	1-123-380-00	ELECT	1MF	20%	50V
C107	1-123-356-00	ELECT	10MF	20%	16V
C108	1-123-379-00	ELECT	0.47MF	20%	50V
C110	1-162-113-00	CERAMIC	0.01MF	30%	16V
C111	1-162-113-00	CERAMIC	0.01MF	30%	16V
C112	1-108-361-00	MYLAR	0.056MF	10%	50V
C113	1-108-361-00	MYLAR	0.056MF	10%	50V
C114	1-123-333-00	ELECT	100MF	20%	16V
C115	1-123-333-00	ELECT	100MF	20%	16V
C116	1-123-296-00	ELECT	220MF	20%	6.3V
[illegible]	[illegible]	[illegible]	[illegible]	20%	25V
[illegible]	[illegible]	[illegible]	[illegible]	20%	25V
C119	1-123-612-00	ELECT	2.2MF	20%	50V
C120	1-162-113-00	CERAMIC	0.01MF	30%	16V
C121	1-162-113-00	CERAMIC	0.01MF	30%	16V
C122	1-162-113-00	CERAMIC	0.01MF	30%	16V
C123	1-161-494-00	CERAMIC	0.022MF	30%	25V
C124	1-162-113-00	CERAMIC	0.01MF	30%	16V
C125	1-162-113-00	CERAMIC	0.01MF	30%	16V
C126	1-162-113-00	CERAMIC	0.01MF	30%	16V
C127	1-162-113-00	CERAMIC	0.01MF	30%	16V
C128	1-162-113-00	CERAMIC	0.01MF	30%	16V

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Replace only with part number specified.

Les composants identifiés par une trame et une marque ⚠ sont critiques pour la sécurité.
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ELECTRICAL PARTS

Ref.No.	Part No.	Description			
C129	1-162-102-00	CERAMIC	220PF	10%	50V
C132	1-161-494-00	CERAMIC	0.022MF	30%	25V
C133	1-162-113-00	CERAMIC	0.01MF	30%	16V
C134	1-161-494-00	CERAMIC	0.022MF	30%	25V
C135	1-123-379-00	ELECT	0.47MF	20%	50V
C136	1-162-113-00	CERAMIC	0.01MF	30%	16V
C137	1-162-113-00	CERAMIC	0.01MF	30%	16V
C190	1-123-356-00	ELECT	10MF	20%	25V
D101	8-719-910-68	DIODE HZ6C2L			
D102 ⚠	8-719-200-02	DIODE 10E-2			
D103 ⚠	8-719-200-02	DIODE 10E-2			
D104 ⚠	8-719-200-02	DIODE 10E-2			
D105 ⚠	8-719-200-02	DIODE 10E-2			
D190	8-719-911-19	DIODE 1SS119			
D191	8-719-911-19	DIODE 1SS119			
D201	8-719-101-11	DIODE SR110			
D301	8-719-906-58	DIODE GL-5HD21			
D302	8-719-906-58	DIODE GL-5HD21			
D303	8-719-906-58	DIODE GL-5HD21			
H101	8-719-800-17	DIODE THS102A			
H102	8-719-800-17	DIODE THS102A			
IC101	8-759-600-02	IC M5218L			
IC102	8-759-602-65	IC CX-065B			
IC103	8-759-600-02	IC M5218L			
IC104	8-759-800-88	IC LM6417E-343			
IC105	8-759-600-02	IC M5218L			
L101	1-407-177-XX	MICRO INDUCTOR 470UH			
L102	1-407-177-XX	MICRO INDUCTOR 470UH			
M301	1-541-163-00	MOTOR			
Q101	8-729-201-83	TRANSISTOR 2SC3112			
Q102	8-729-177-43	TRANSISTOR 2SD774			
Q103	8-729-900-38	TRANSISTOR DTA114EF			
Q104	8-729-201-83	TRANSISTOR 2SC3112			
Q105	8-729-900-87	TRANSISTOR DTC124XF			
Q106	8-729-900-87	TRANSISTOR DTC124XF			
Q107	8-729-802-22	TRANSISTOR 2SB1014			
Q108	8-729-802-34	TRANSISTOR 2SD1388			
Q109	8-729-201-52	TRANSISTOR 2SA1015			
Q110	8-729-201-83	TRANSISTOR 2SC3112			
Q112	8-729-177-43	TRANSISTOR 2SD774			
Q113	8-729-374-02	TRANSISTOR 2SB740			
Q114	8-729-177-43	TRANSISTOR 2SD774			
Q115	8-729-374-02	TRANSISTOR 2SB740			
Q201	8-729-101-13	TRANSISTOR PH103			

ELECTRICAL PARTS

Ref.No.	Part No.	Description				
R101	1-247-807-00	CARBON	100	5%	1/6W	
R102	1-247-887-00	CARBON	220K	5%	1/6W	
R103	1-247-903-00	CARBON	1M	5%	1/6W	
R104	1-247-847-00	CARBON	4.7K	5%	1/6W	
R105	1-247-847-00	CARBON	4.7K	5%	1/6W	
R106	1-247-847-00	CARBON	4.7K	5%	1/6W	
R107	1-247-831-00	CARBON	1K	5%	1/6W	
R108	1-247-831-00	CARBON	1K	5%	1/6W	
R109	1-247-831-00	CARBON	1K	5%	1/6W	
R110	1-247-831-00	CARBON	1K	5%	1/6W	
R111	1-247-831-00	CARBON	1K	5%	1/6W	
R112	1-247-887-00	CARBON	220K	5%	1/6W	
R113	1-247-887-00	CARBON	220K	5%	1/6W	
R114	1-202-459-00	SOLID	1.5M	5%	1/4W	
R115	1-202-459-00	SOLID	1.5M	5%	1/4W	
R116	1-247-815-00	CARBON	220	5%	1/6W	
R117	1-247-815-00	CARBON	220	5%	1/6W	
R118	1-247-887-00	CARBON	220K	5%	1/6W	
R119	1-247-815-00	CARBON	220	5%	1/6W	
R120	1-247-815-00	CARBON	220	5%	1/6W	
R121	1-247-887-00	CARBON	220K	5%	1/6W	
R122	1-247-121-00	CARBON	390	5%	1/4W	
R123 ⚠	1-202-855-00	SOLID	15	[illegible]	1/4W	F
R124	1-247-831-00	CARBON	1K	5%	1/6W	
R125	1-247-121-00	CARBON	390	5%	1/4W	
R126 ⚠	1-202-850-00	SOLID	2.2	[illegible]	1/4W	F
R127	1-214-767-00	METAL	39K	1%	1/4W	
R128	1-214-780-00	METAL	130K	1%	1/4W	
R129	1-247-863-00	CARBON	22K	5%	1/6W	
R130	1-247-863-00	CARBON	22K	5%	1/6W	
R131	1-247-855-00	CARBON	10K	5%	1/6W	
R132	1-247-855-00	CARBON	10K	5%	1/6W	
R133	1-247-855-00	CARBON	10K	5%	1/6W	
R134	1-247-855-00	CARBON	10K	5%	1/6W	
R135	1-247-855-00	CARBON	10K	5%	1/6W	
R136	1-247-855-00	CARBON	10K	5%	1/6W	
R137	1-247-855-00	CARBON	10K	5%	1/6W	
R138	1-247-855-00	CARBON	10K	5%	1/6W	
R139	1-247-855-00	CARBON	10K	5%	1/6W	
R140	1-247-855-00	CARBON	10K	5%	1/6W	
R141	1-247-825-00	CARBON	560	5%	1/6W	
R142	1-247-831-00	CARBON	1K	5%	1/6W	
R143	1-247-831-00	CARBON	1K	5%	1/6W	
R144	1-247-831-00	CARBON	1K	5%	1/6W	
R145	1-247-831-00	CARBON	1K	5%	1/6W	

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R146	1-247-831-00	CARBON 1K 5% 1/6W
R147	1-247-831-00	CARBON 1K 5% 1/6W
R148	1-247-831-00	CARBON 1K 5% 1/6W
R149	1-247-831-00	CARBON 1K 5% 1/6W
R150	1-247-857-00	CARBON 12K 5% 1/6W
R151	1-247-855-00	CARBON 10K 5% 1/6W
R152	1-247-855-00	CARBON 10K 5% 1/6W
R153	1-247-825-00	CARBON 560 5% 1/6W
R154	1-247-855-00	CARBON 10K 5% 1/6W
R155	1-247-851-00	CARBON 6.8K 5% 1/6W
R156	1-247-807-00	CARBON 100 5% 1/6W
R157	1-247-890-00	CARBON 300K 5% 1/6W
R158	1-247-855-00	CARBON 10K 5% 1/6W
R159	1-247-855-00	CARBON 10K 5% 1/6W
R160	1-247-855-00	CARBON 10K 5% 1/6W
R161	1-247-869-00	CARBON 39K 5% 1/6W
R162	1-247-862-00	CARBON 20K 5% 1/6W
R163	1-247-863-00	CARBON 22K 5% 1/6W
R164	1-247-831-00	CARBON 1K 5% 1/6W
R165	1-247-855-00	CARBON 10K 5% 1/6W
R166	1-247-815-00	CARBON 220 5% 1/6W
R167	1-247-861-00	CARBON 18K 5% 1/6W
R168	1-247-847-00	CARBON 4.7K 5% 1/6W
R169	1-247-855-00	CARBON 10K 5% 1/6W
R170	1-247-827-00	CARBON 680 5% 1/6W
R171	1-247-871-00	CARBON 47K 5% 1/6W
R172	1-247-794-00	CARBON 30 5% 1/6W
R173	1-247-879-00	CARBON 100K 5% 1/6W
R174	1-247-879-00	CARBON 100K 5% 1/6W
R175	1-247-831-00	CARBON 1K 5% 1/6W
R190	1-247-847-00	CARBON 4.7K 5% 1/6W
R191 ⚠	1-202-850-00	SOLID [illegible] 2.2 [illegible] 1/4W F
RV101	1-226-234-00	RES, ADJ, CARBON 2K
RV102	1-226-234-00	RES, ADJ, CARBON 2K
RV103	1-226-235-00	RES, ADJ, CARBON 5K
RV104	1-226-235-00	RES, ADJ, CARBON 5K
RV105	1-226-237-00	RES, ADJ, CARBON 20K
RV106	1-228-238-00	RES, ADJ, METAL GLAZE 20K
S101	1-554-764-11	SWITCH
S301	1-553-856-00	SWITCH, KEY BOARD (START/STOP)
S302	1-553-856-00	SWITCH, KEY BOARD (ARM LIFTER)
S303	1-553-856-00	SWITCH, KEY BOARD (SPEED)
S304	1-553-856-00	SWITCH, KEY BOARD (REPEAT)
S401	1-554-205-00	SWITCH, PUSH (SIZE SELECTOR)

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- The mechanical parts with no reference number in the exploded views are not supplied.
- Items marked " ♠ " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- Due to standardization, parts with part numbers (Δ-ΔΔΔ-ΔΔΔ-XX or Δ-ΔΔΔΔ-ΔΔΔ-X) may be different from those used in the set.
- If there are two or more same circuitsin a set such as a stereophonic machine, only typical circuit parts may be indicated and capacitors and resistors in other same circuits may be omitted.

CAPACITORS:
MF:μF, PF:μμF.

RESISTORS
- All resistors are in ohms.
- F : nonflammable

COILS
- MMH : mH, UH : μH

SEMICONDUCTORS
In each case, U : μ, for example:
UA···: μA···, UPA···: μPA···, UPC···: μPC, UPD···: μPD···

The components identified by shading and mark ⚠ are critical for safety.
Replace only with part number specified.

Les composants identifiés par une trame et une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

INTEGRATED STEREO AMPLIFIER

〔TA-V10〕

SECTION 1

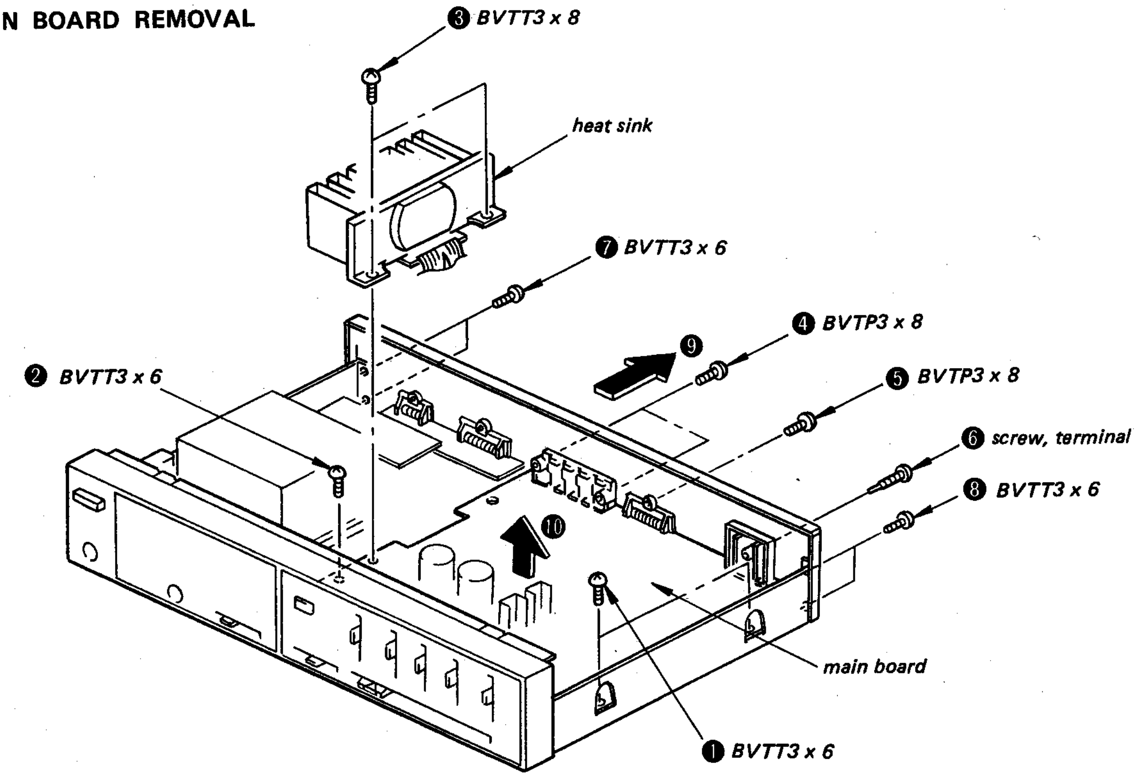
DISASSEMBLY

Note: Follow the disassembly procedure in the numerical order given.

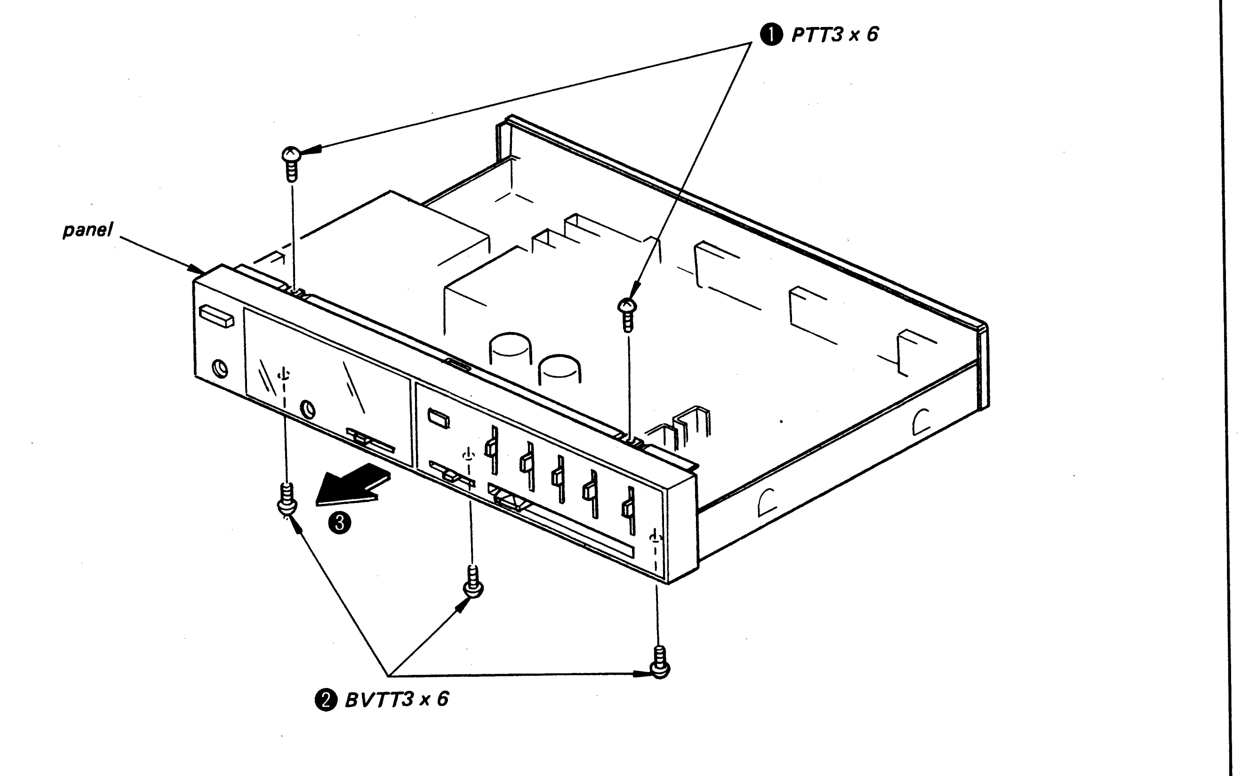
CASE REMOVAL

Remove case by taking out four screws.

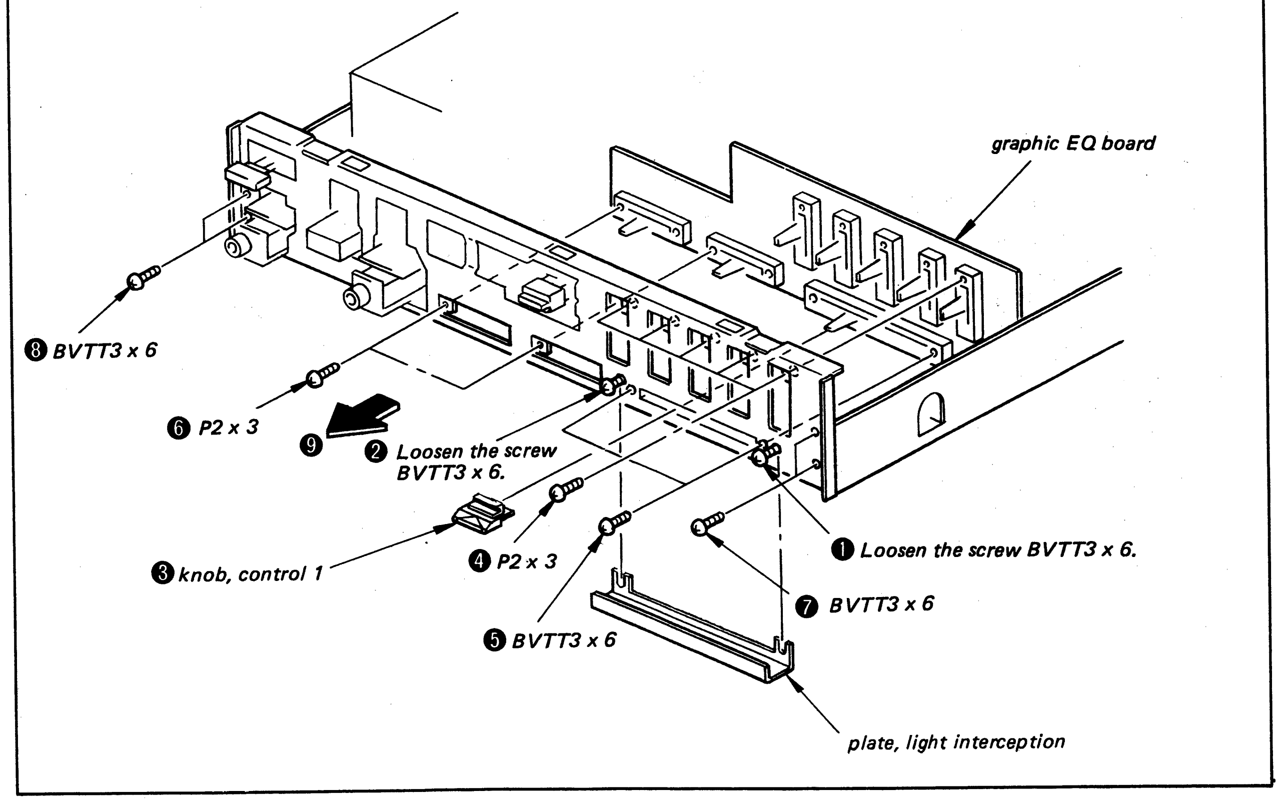
MAIN BOARD REMOVAL


③ BVTT3 x 8
heat sink
⑦ BVTT3 x 6
④ BVTP3 x 8
⑨
② BVTT3 x 6
⑤ BVTP3 x 8
⑥ screw, terminal
⑧ BVTT3 x 6
⑩
main board
① BVTT3 x 6

PANEL REMOVAL

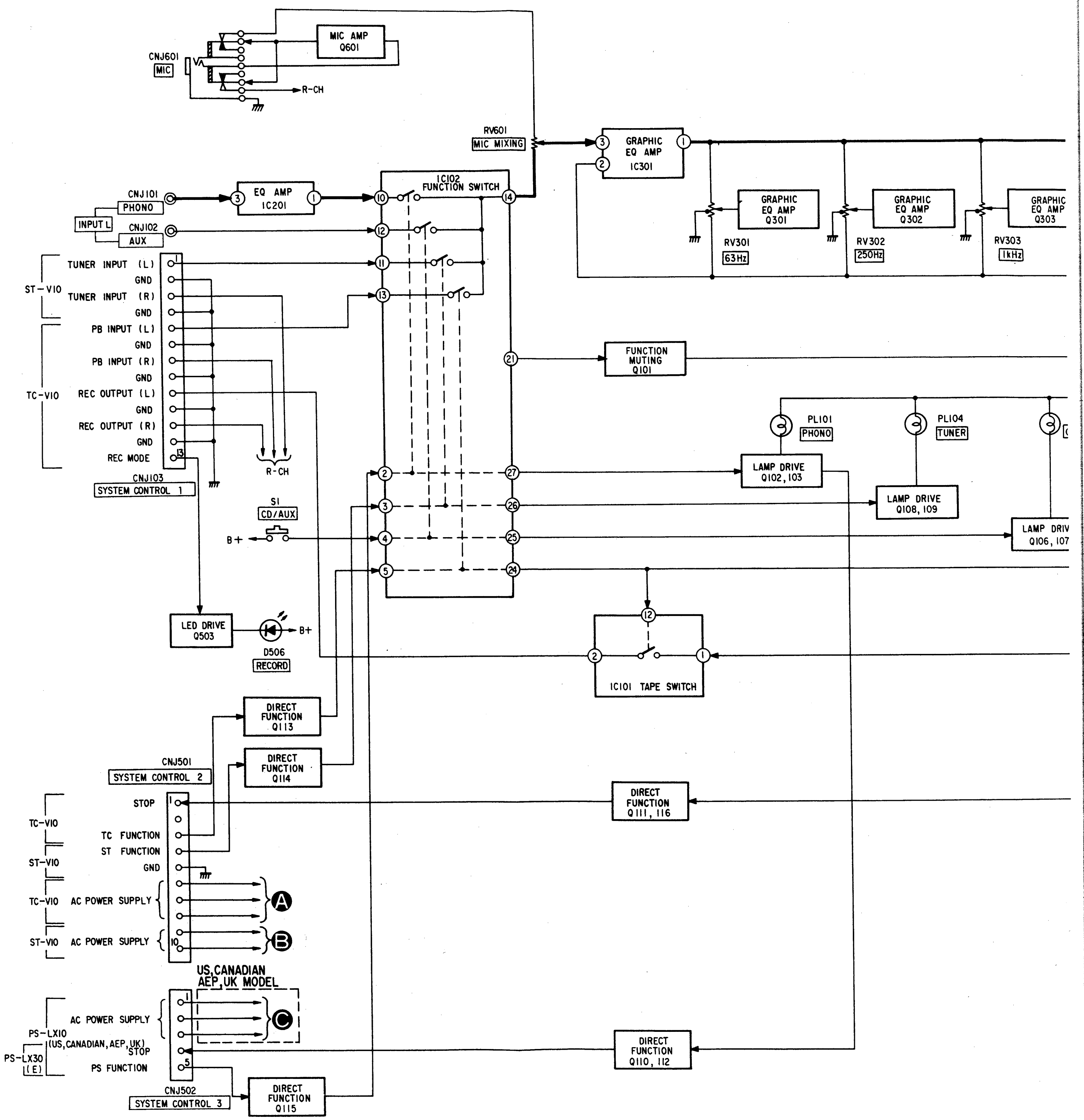

❶ PTT3 x 6
panel
❸
❷ BVTT3 x 6

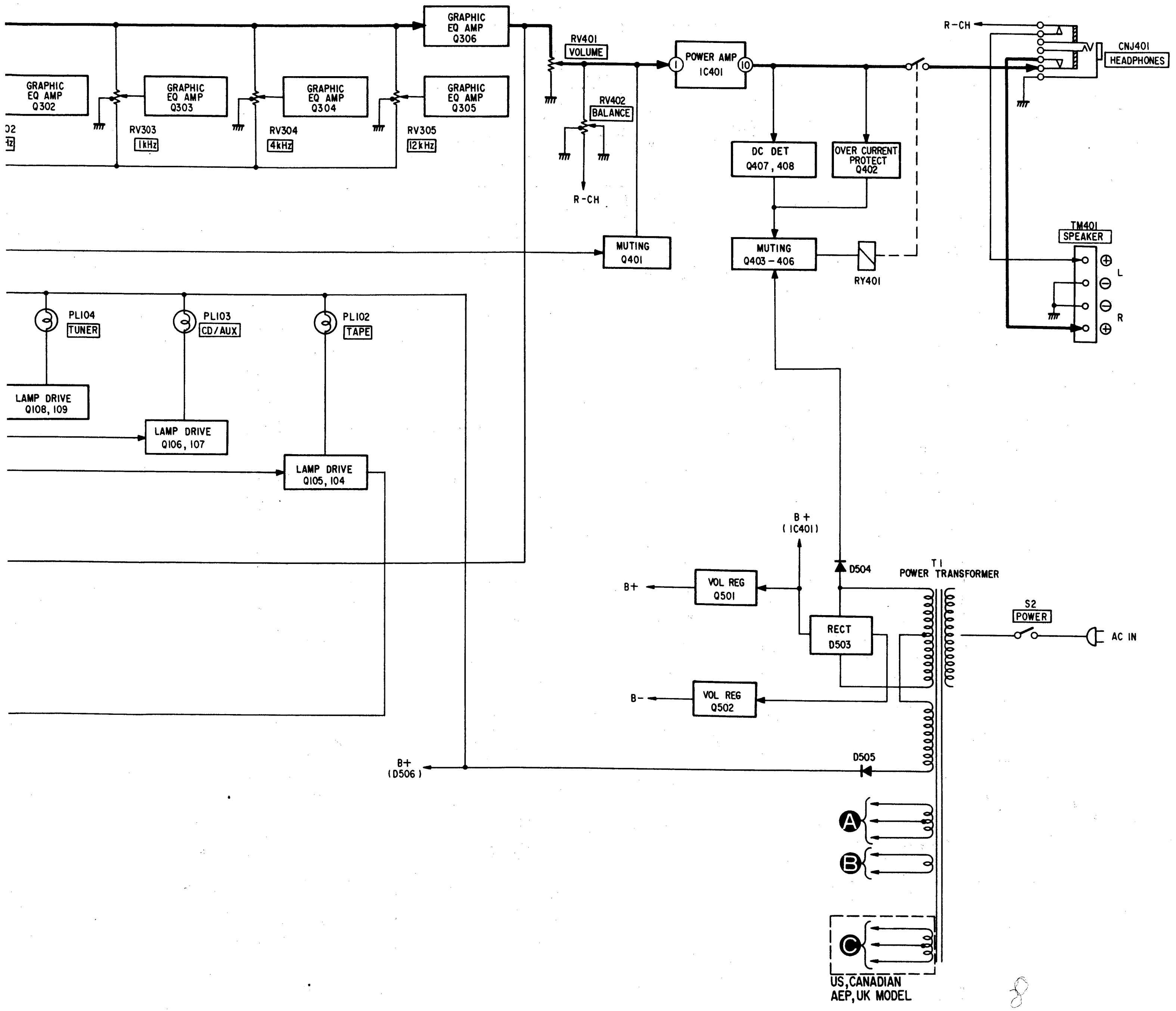
GRAPHIC EQ BOARD REMOVAL


graphic EQ board
❽ BVTT3 x 6
❻ P2 x 3
❾
❷ Loosen the screw BVTT3 x 6.
❸ knob, control 1
❹ P2 x 3
❶ Loosen the screw BVTT3 x 6.
❼ BVTT3 x 6
❺ BVTT3 x 6
plate, light interception

SECTION 2
DIAGRAMS

2-1. BLOCK DIAGRAM


CNJ601
MIC
MIC AMP Q601
R-CH
RV601
MIC MIXING
GRAPHIC EQ AMP IC301
GRAPHIC EQ AMP Q301
GRAPHIC EQ AMP Q302
GRAPHIC EQ AMP Q303
RV301
63Hz
RV302
250Hz
RV303
1kHz
CNJ101
PHONO
INPUT L
CNJ102
AUX
EQ AMP IC201
IC102 FUNCTION SWITCH
ST-V10
TC-V10
TUNER INPUT (L)
GND
TUNER INPUT (R)
GND
PB INPUT (L)
GND
PB INPUT (R)
GND
REC OUTPUT (L)
GND
REC OUTPUT (R)
GND
REC MODE
CNJ103
SYSTEM CONTROL 1
R-CH
FUNCTION MUTING Q101
PL101
PHONO
PL104
TUNER
LAMP DRIVE Q102, 103
LAMP DRIVE Q108, 109
LAMP DRIV Q106, 107
S1
CD/AUX
B+
LED DRIVE Q503
D506
RECORD
B+
IC101 TAPE SWITCH
DIRECT FUNCTION Q113
DIRECT FUNCTION Q114
CNJ501
SYSTEM CONTROL 2
STOP
TC FUNCTION
ST FUNCTION
GND
TC-V10
ST-V10
AC POWER SUPPLY
A
B
DIRECT FUNCTION Q111, 116
US,CANADIAN AEP,UK MODEL
C
PS-LX10
(US,CANADIAN,AEP,UK)
PS-LX30 (E)
AC POWER SUPPLY
STOP
PS FUNCTION
CNJ502
SYSTEM CONTROL 3
DIRECT FUNCTION Q115
DIRECT FUNCTION Q110, 112

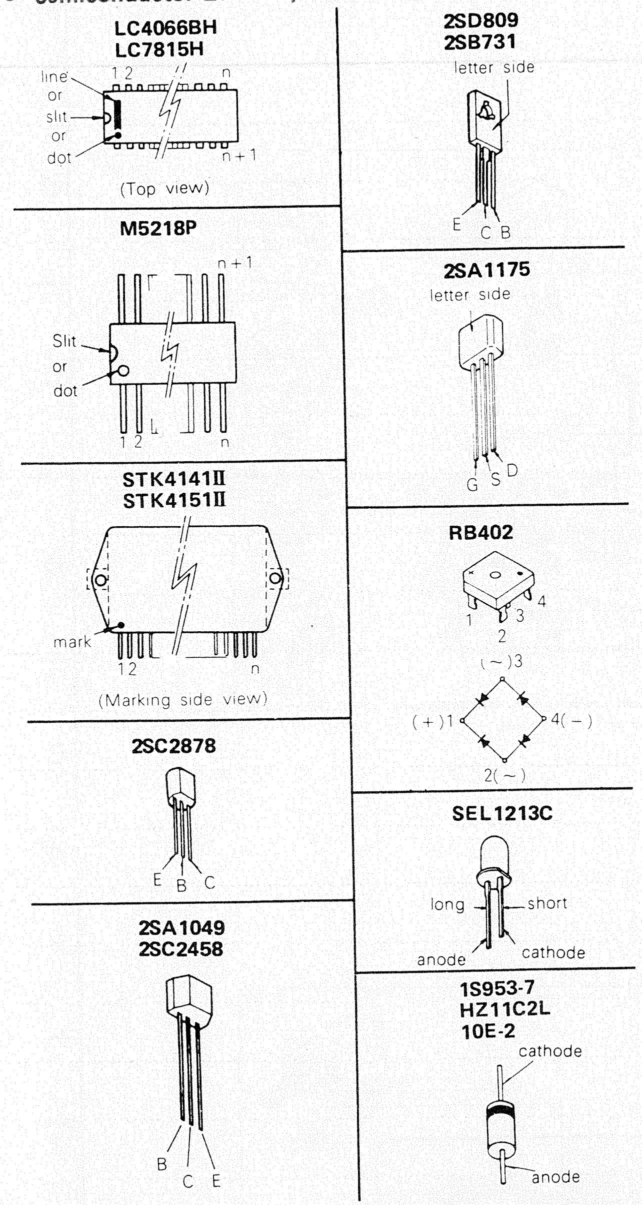

GRAPHIC EQ AMP Q302
GRAPHIC EQ AMP Q303
GRAPHIC EQ AMP Q304
GRAPHIC EQ AMP Q305
GRAPHIC EQ AMP Q306
RV303 1kHz
RV304 4kHz
RV305 12kHz
RV401 VOLUME
RV402 BALANCE
R-CH
POWER AMP IC401
1
10
DC DET Q407, 408
OVER CURRENT PROTECT Q402
MUTING Q401
MUTING Q403 - 406
RY401
R-CH
CNJ401 HEADPHONES
TM401 SPEAKER
L
R
PL104 TUNER
PL103 CD/AUX
PL102 TAPE
LAMP DRIVE Q108, 109
LAMP DRIVE Q106, 107
LAMP DRIVE Q105, 104
B+ (IC401)
D504
T1 POWER TRANSFORMER
S2 POWER
AC IN
B+
VOL REG Q501
RECT D503
B-
VOL REG Q502
D505
B+ (D506)
A
B
C
US, CANADIAN AEP, UK MODEL

8

MEMO

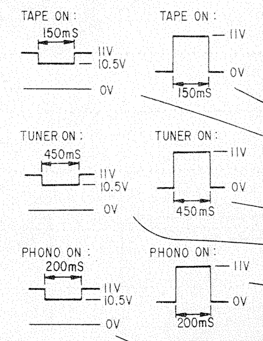
2-2. MOUNTING DIAGRAM

- **Semiconductor Lead Layouts**

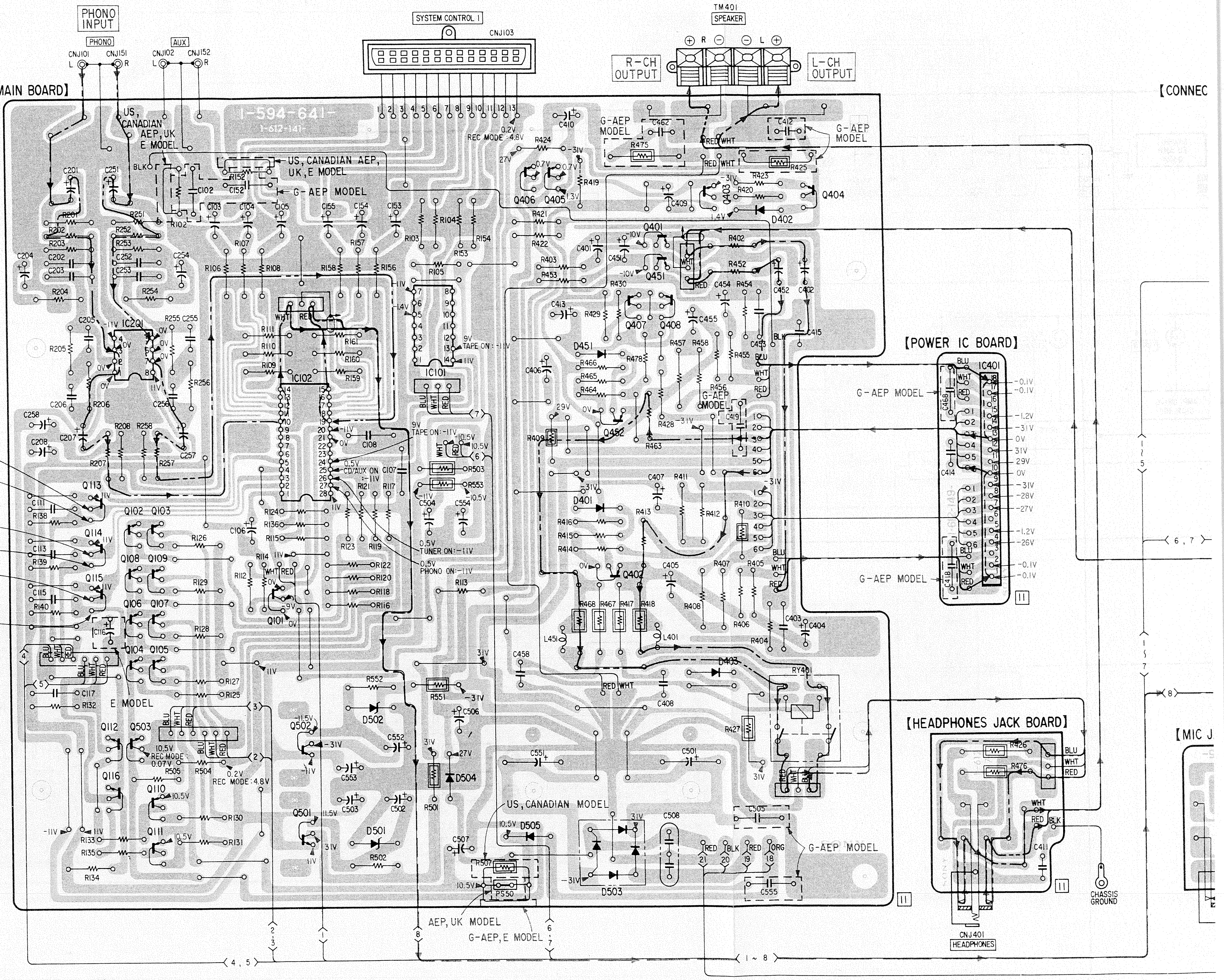

LC4066BH
LC7815H
line
or
slit
or
dot
1 2
n
n+1
(Top view)
M5218P
n+1
Slit
or
dot
1 2
n
STK4141II
STK4151II
mark
1 2
n
(Marking side view)
2SC2878
E B C
2SA1049
2SC2458
B C E
2SD809
2SB731
letter side
E C B
2SA1175
letter side
G S D
RB402
4
1 3
2
(~)3
(+)1
4(−)
2(~)
SEL1213C
long
short
anode
cathode
1S953-7
HZ11C2L
10E-2
cathode
anode

	1	2	3	4	5	6	7	8	9	10	11	12
Q, IC			IC201 113 114 115 112 116 503 110 111	102 103 108 109 106 107 104 105 101	502 501 IC102	IC101	406 405 452 402	401 451 407 408 403	404		IC401	
D					502 501	504 505	451 401 503	403	402			

Q102	B	0.7V PHONO ON : −0.9V
	C	0V PHONO ON : 0.7V
Q103	B	0V PHONO ON : 0.7V
	C	10.5V PHONO ON : 0.7V
Q108	B	0.7V TUNER ON : −0.9V
	C	0V TUNER ON : 0.7V
Q109	B	0V TUNER ON : 0.7V
	C	10.5V TUNER ON : 0.7V
Q106	B	0.7V CD/AUX ON: −0.9V
	C	0V CD/AUX ON: 0.7V
Q107	B	0V CD/AUX ON: 0.7V
	C	10.5V CD/AUX ON: 0.7V
Q104	B	0.7V TAPE ON : −0.7V
	C	0V TAPE ON : 0.7V
Q105	B	0V TAPE ON : 0.7V
	C	10.5V TAPE ON : 0.7V

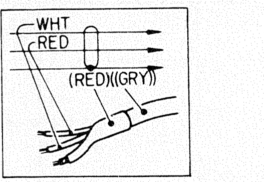

TAPE ON :
150mS
11V
10.5V
0V
TAPE ON :
11V
0V
150mS
TUNER ON :
450mS
11V
10.5V
0V
TUNER ON :
11V
0V
450mS
PHONO ON :
200mS
11V
10.5V
0V
PHONO ON :
11V
0V
200mS

Q112	B	0V PHONO ON : 0.7V
	C	11V PHONO ON : 0.2V
Q116	B	0V TAPE ON : 0.7V
	C	1 V TAPE ON : 0 V
Q110	C	0V PHON ON : 10.5V
Q111	C	0V TAPE ON : 10.5V

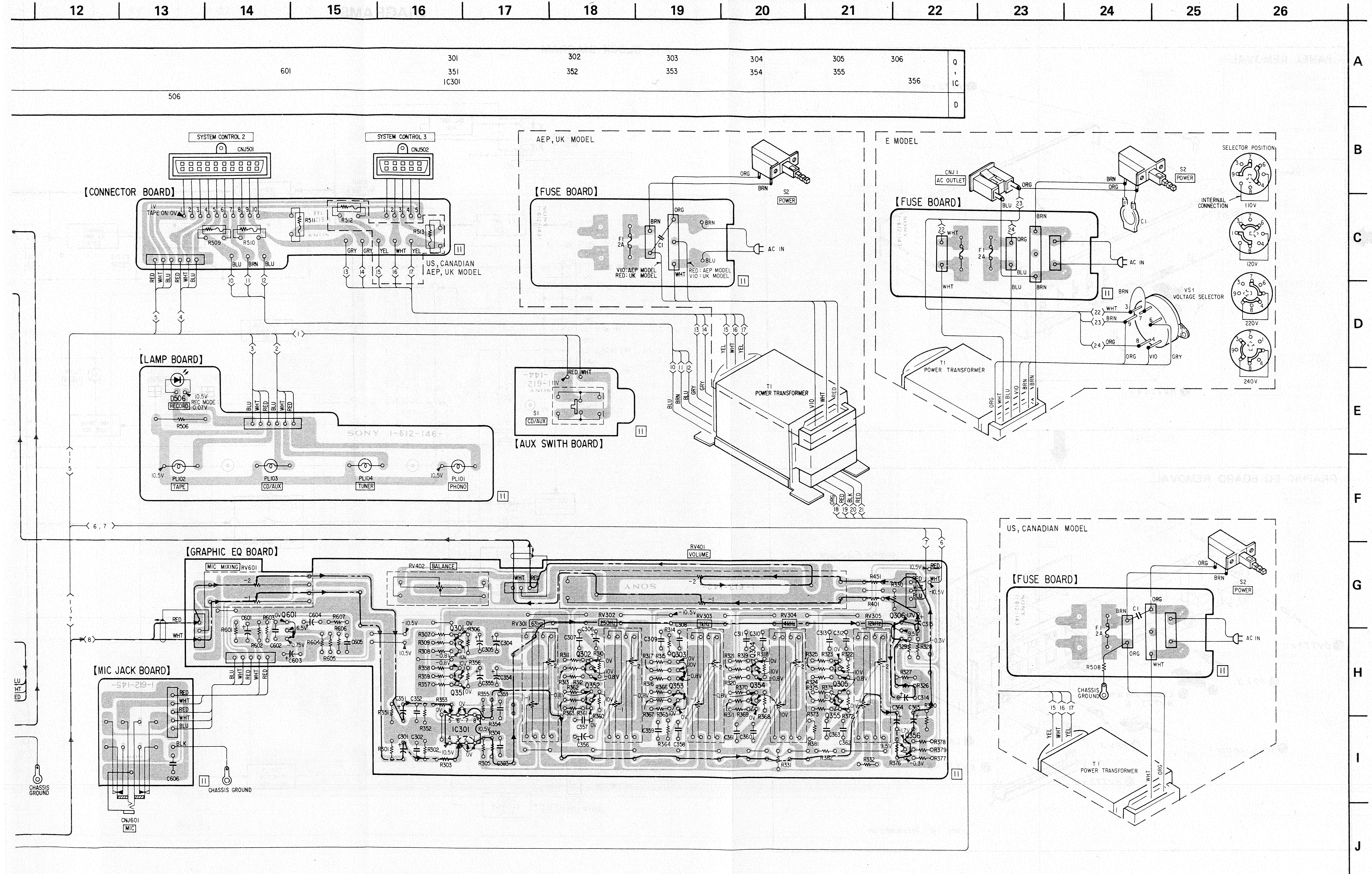

PHONO INPUT
PHONO
CNJ101
CNJ151
L
R
AUX
CNJ102
CNJ152
SYSTEM CONTROL 1
CNJ103
TM401
SPEAKER
R-CH OUTPUT
L-CH OUTPUT
[MAIN BOARD]
1-594-641-
1-612-141-
US, CANADIAN AEP, UK E MODEL
US, CANADIAN AEP, UK, E MODEL
G-AEP MODEL
IC201
IC102
IC101
TAPE ON : −11V
CD/AUX ON : −11V
TUNER ON : −11V
PHONO ON : −11V
REC MODE : 4.8V
E MODEL
[POWER IC BOARD]
IC401
G-AEP MODEL
RY401
US, CANADIAN MODEL
AEP, UK MODEL
G-AEP, E MODEL
[HEADPHONES JACK BOARD]
CNJ401
HEADPHONES
CHASSIS GROUND
[CONNEC
[MIC J

Note:

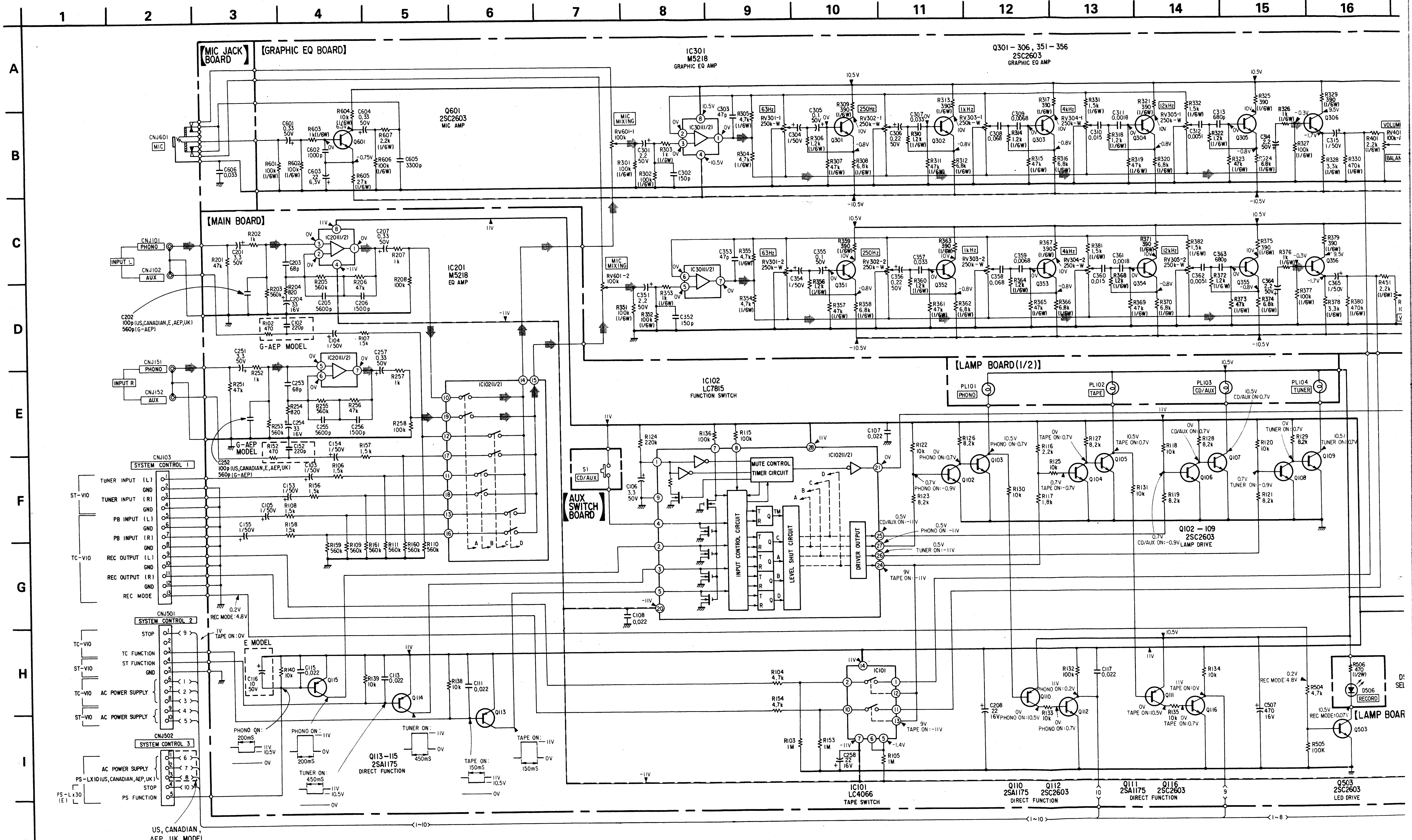
- Color code of sleeving over the end of the jacket.

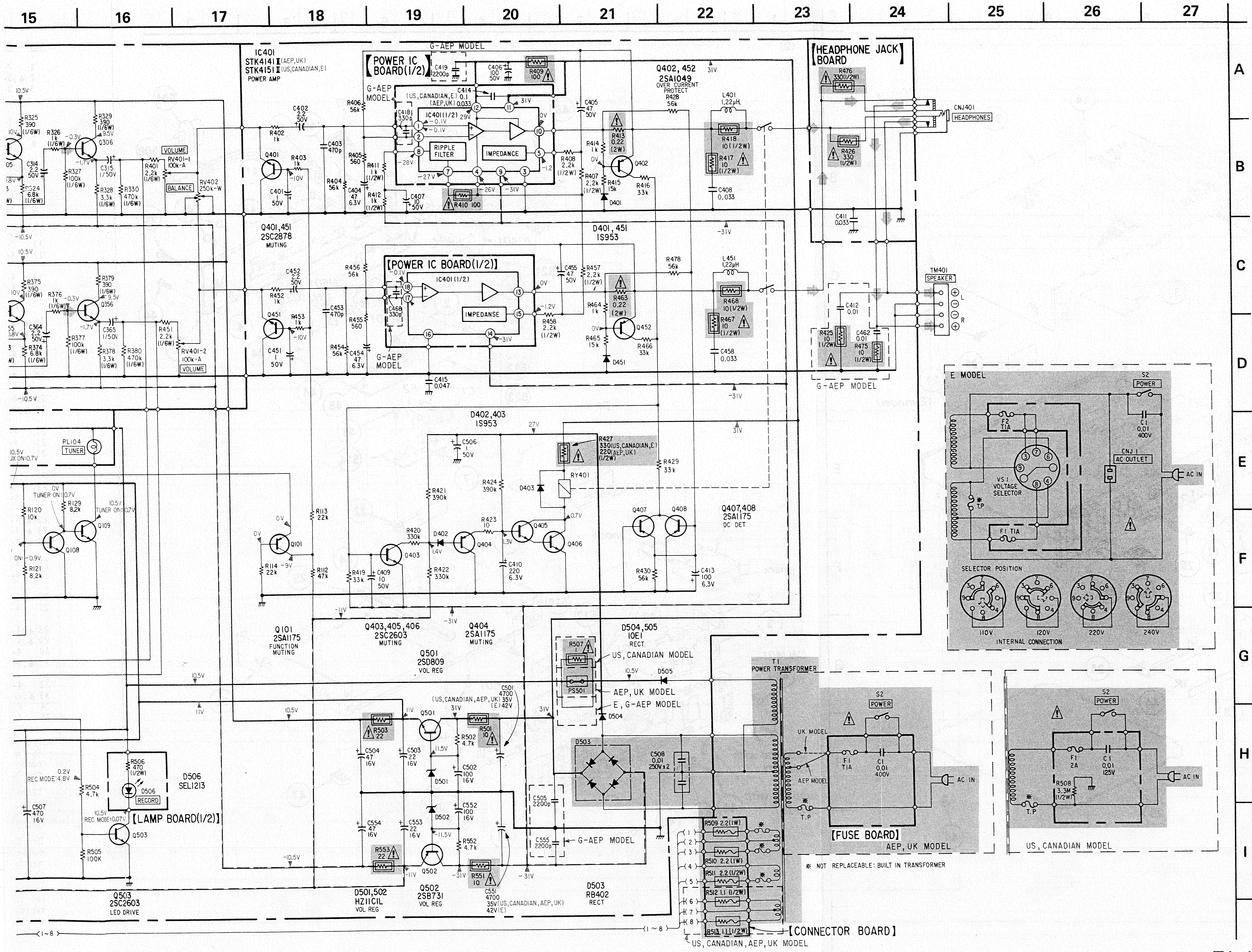

WHT
RED
(RED)((GRY))

- ○—— : parts extracted from the component side.
- ▨ : B + pattern
- ▩ : B − pattern
- ━━➡━━ : signal path
- ━━ ━ ━━➡ : L-CH signal path
- ━━ ━ ━ ━━➡ : R-CH signal path


12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
A
B
C
D
E
F
G
H
I
J
Q
IC
D
SYSTEM CONTROL 2
CNJ501
SYSTEM CONTROL 3
CNJ502
【CONNECTOR BOARD】
TAPE ON:0V
US, CANADIAN
AEP, UK MODEL
AEP, UK MODEL
【FUSE BOARD】
S2
POWER
AC IN
V10:AEP MODEL
RED: UK MODEL
RED: AEP MODEL
V10: UK MODEL
E MODEL
CNJ1
AC OUTLET
SELECTOR POSITION
INTERNAL CONNECTION
110V
120V
220V
240V
VS1
VOLTAGE SELECTOR
T1
POWER TRANSFORMER
【LAMP BOARD】
D506
RECORD
10.5V
REC MODE: 0.07V
R506
SONY 1-612-146-
PL102
TAPE
PL103
CD/AUX
PL104
TUNER
PL101
PHONO
S1
CD/AUX
【AUX SWITH BOARD】
【GRAPHIC EQ BOARD】
MIC MIXING
RV601
RV402
BALANCE
RV401
VOLUME
RV301
63Hz
RV302
250Hz
RV303
1kHz
RV304
4kHz
RV305
16kHz
IC301
【MIC JACK BOARD】
CNJ601
MIC
CHASSIS GROUND
US, CANADIAN MODEL
R508
CHASSIS GROUND

2-3. SCHEMATIC DIAGRAM


1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
A
B
C
D
E
F
G
H
I
J
[MIC JACK BOARD]
[GRAPHIC EQ BOARD]
CNJ601 MIC
Q601 2SC2603 MIC AMP
IC301 M5218 GRAPHIC EQ AMP
Q301 - 306, 351 - 356 2SC2603 GRAPHIC EQ AMP
63Hz
250Hz
1kHz
4kHz
12kHz
VOLUME
BALANCE
MIC MIXING
RV601-1 100k
RV601-2 100k
[MAIN BOARD]
CNJ101 PHONO
CNJ102 AUX
INPUT L
CNJ151 PHONO
CNJ152 AUX
INPUT R
IC201 M5218 EQ AMP
C202 100p (US,CANADIAN,E,AEP,UK) 560p (G-AEP)
C252 100p (US,CANADIAN,E,AEP,UK) 560p (G-AEP)
G-AEP MODEL
IC102 (1/2)
IC102 LC7815 FUNCTION SWITCH
MUTE CONTROL TIMER CIRCUIT
INPUT CONTROL CIRCUIT
LEVEL SHUT CIRCUIT
DRIVER OUTPUT
S1 CD/AUX
AUX SWITCH BOARD
[LAMP BOARD (1/2)]
PL101 PHONO
PL102 TAPE
PL103 CD/AUX
PL104 TUNER
Q102 - 109 2SC2603 LAMP DRIVE
CNJ103 SYSTEM CONTROL 1
TUNER INPUT (L)
GND
TUNER INPUT (R)
PB INPUT (L)
PB INPUT (R)
REC OUTPUT (L)
REC OUTPUT (R)
REC MODE
ST-V10
TC-V10
CNJ501 SYSTEM CONTROL 2
STOP
TC FUNCTION
ST FUNCTION
AC POWER SUPPLY
CNJ502 SYSTEM CONTROL 3
PS-LX10 (US,CANADIAN,AEP,UK)
PS FUNCTION
PS-LX30 (E)
US, CANADIAN, AEP, UK MODEL
E MODEL
PHONO ON: 200mS
TUNER ON: 450mS
TAPE ON: 150mS
Q113 - 115 2SA1175 DIRECT FUNCTION
IC101 LC4066 TAPE SWITCH
Q110 2SA1175 Q112 2SC2603 DIRECT FUNCTION
Q111 2SA1175 Q116 2SC2603 DIRECT FUNCTION
Q503 2SC2603 LED DRIVE
D506 RECORD
[LAMP BOARD]
10.5V
-10.5V
11V
-11V


15
16
17
18
19
20
21
22
23
24
25
26
27
A
B
C
D
E
F
G
H
I
IC401
STK4141Ⅱ(AEP,UK)
STK4151Ⅱ(US,CANADIAN,E)
POWER AMP
【POWER IC BOARD(1/2)】
G-AEP MODEL
IC401(1/2)
RIPPLE FILTER
IMPEDANCE
IMPEDANSE
Q402,452
2SA1049
OVER CURRENT PROTECT
【HEADPHONE JACK BOARD】
CNJ401
HEADPHONES
TM401
SPEAKER
VOLUME
BALANCE
RV401-1 100k-A
RV401-2 100k-A
RV402 250k-W
Q401,451
2SC2878
MUTING
D401,451
1S953
D402,403
1S953
RY401
Q407,408
2SA1175
DC DET
Q101
2SA1175
FUNCTION MUTING
Q403,405,406
2SC2603
MUTING
Q404
2SA1175
MUTING
Q501
2SD809
VOL REG
Q502
2SB731
VOL REG
D501,502
HZ11CIL
VOL REG
D503
RB402
RECT
D504,505
10E1
RECT
US,CANADIAN MODEL
AEP,UK MODEL
E,G-AEP MODEL
PL104
TUNER
Q503
2SC2603
LED DRIVE
D506
SEL1213
RECORD
【LAMP BOARD(1/2)】
T1
POWER TRANSFORMER
UK MODEL
AEP MODEL
S2
POWER
F1
T1A
C1
0.01
400V
AC IN
【FUSE BOARD】
AEP,UK MODEL
US,CANADIAN MODEL
F1 2A
C1 0.01 125V
R508 3.3M (1/2W)
T.P
E MODEL
F2 T1A
F1 T1A
VS1
VOLTAGE SELECTOR
CNJ1
AC OUTLET
SELECTOR POSITION
110V
120V
220V
240V
INTERNAL CONNECTION
※ NOT REPLACEABLE: BUILT IN TRANSFORMER
【CONNECTOR BOARD】
US,CANADIAN,AEP,UK MODEL

Note:

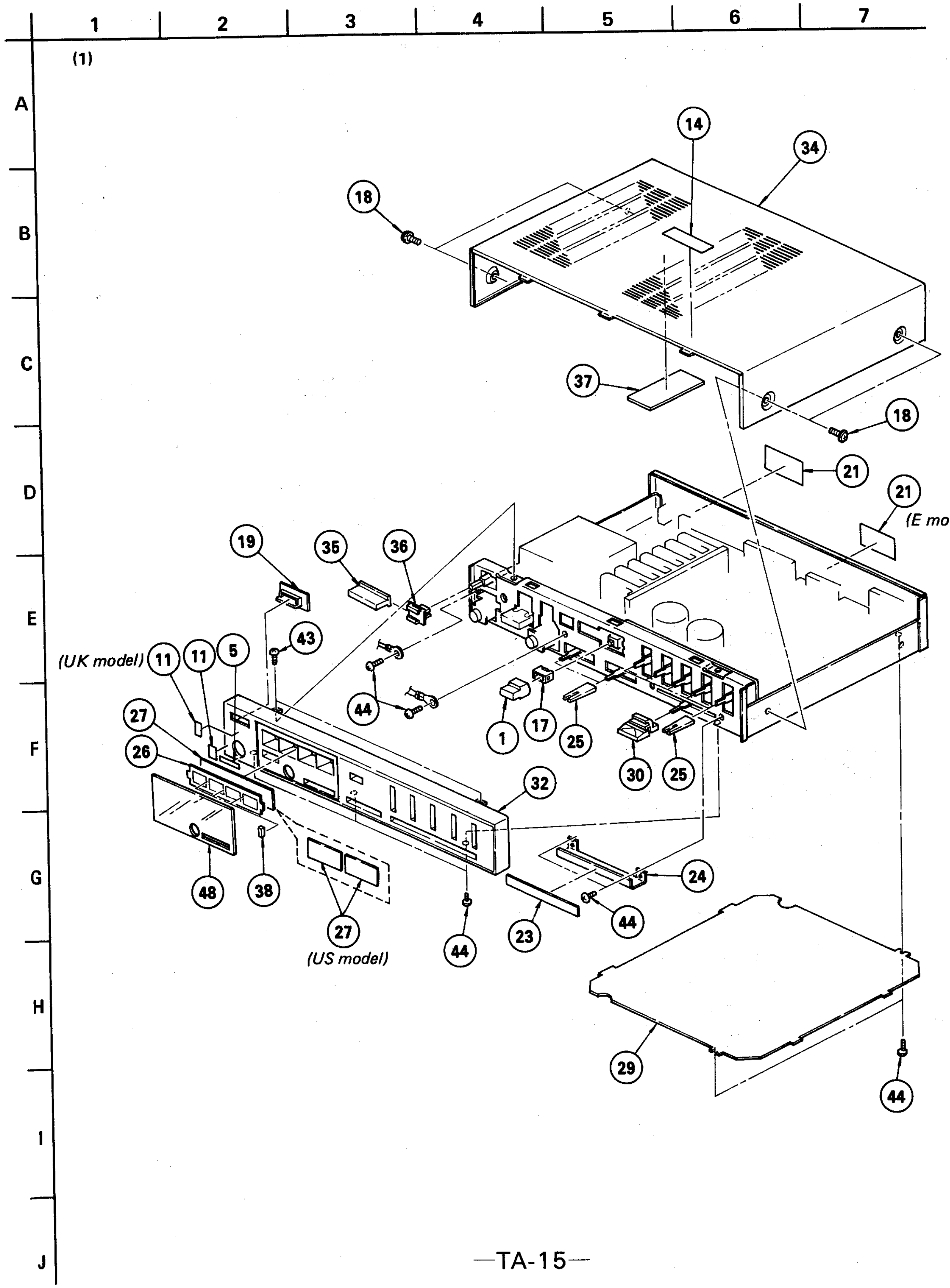
- All capacitors are in μF unless otherwise noted. pF: μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in ohms, 1/4 W unless otherwise noted. kΩ: 1000 Ω, MΩ: 1000 kΩ
- ▭ : nonflammable resistor.
- ▭ : fusible resistor.
- ▭ : panel designation.
- ▬ : B+ bus.
- ▬ : B– bus.
- Voltages are dc with respect to ground unless otherwise noted.
- Readings are taken under no-signal conditions with a VOM.
- Voltage variations may be noted due to normal production tolerances.
- ➡ : signal path.

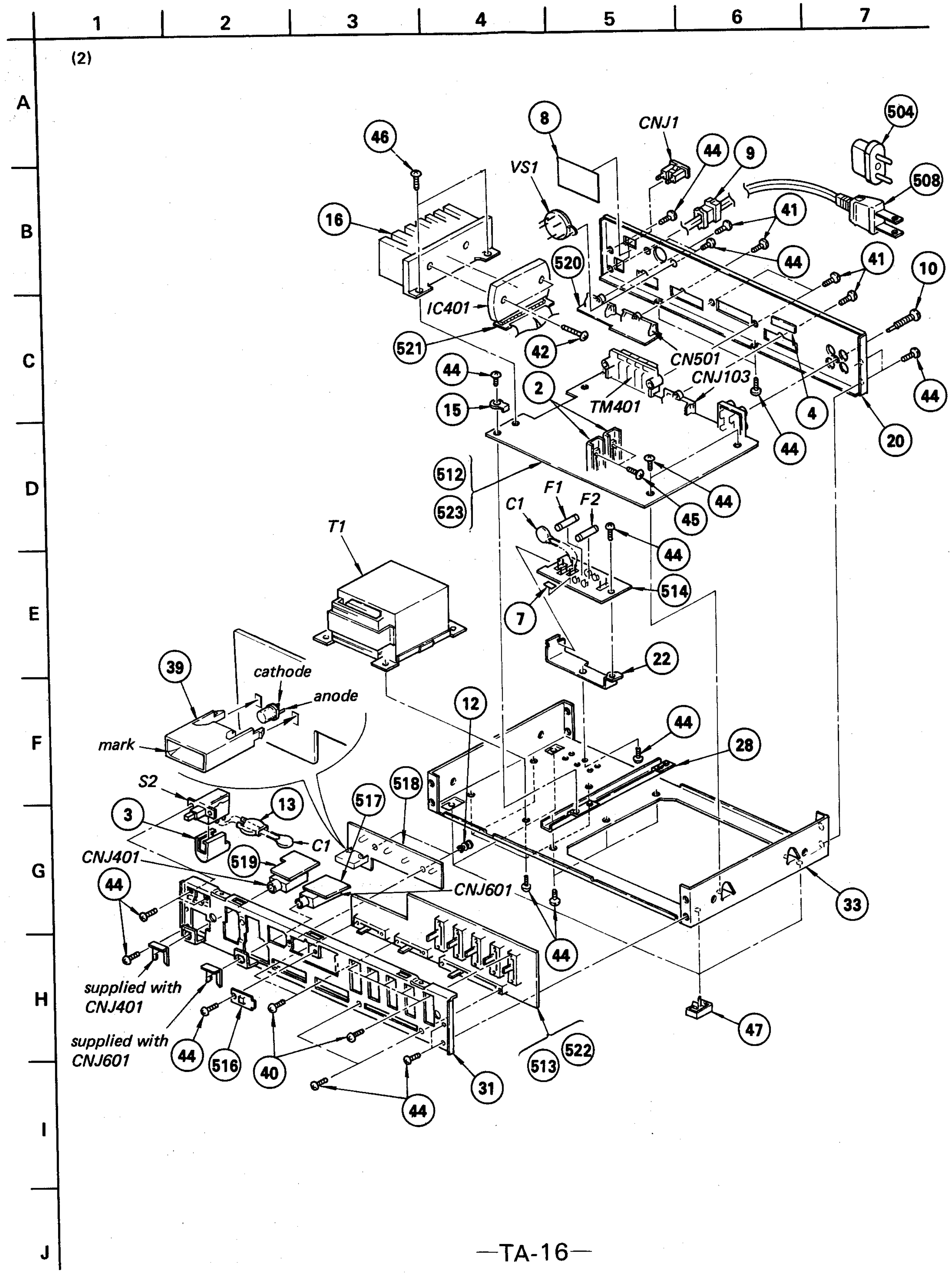
Note: Voltages are measured with a VOM (50kΩ/V).

Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

Note: Les composants identifiés par un tramé et une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

SECTION 3
EXPLODED VIEWS AND PARTS LIST


1
2
3
4
5
6
7
A
B
C
D
E
F
G
H
I
J
(1)
14
34
18
37
18
21
21
(E model)
19
35
36
43
(UK model)
11
11
5
44
27
26
1
17
25
30
25
32
48
38
27
(US model)
44
23
24
44
29
44


1
2
3
4
5
6
7
A
B
C
D
E
F
G
H
I
J
(2)
46
16
8
VS1
CNJ1
44
9
504
508
41
44
41
10
520
IC401
521
42
CN501
CNJ103
44
15
2
TM401
4
20
44
44
512
523
44
45
F1
F2
C1
44
514
T1
7
22
39
cathode
anode
mark
12
44
28
S2
3
13
C1
517
518
CNJ401
519
CNJ601
44
44
33
supplied with CNJ401
supplied with CNJ601
44
516
40
44
31
513
522
47

GENERAL SECTION

No.	Part No.	Description
1	2-363-012-11	KNOB (6X14), CORNER (CD/AUX)
2	♠;3-312-615-31	HEAT SINK
3	3-575-524-00	(AEP,UK)...COVER, POWER SWITCH
4	3-701-030-00	LABEL, SERIAL NUMBER
5	♠;3-701-690-00	(UK)...LABEL (MADE IN JAPAN)
6	....	
7	♠;3-701-946-23	(US,Canadian)...LABEL, FUSE
8	3-703-044-26	(US,Canadian)...LABEL, CAUTION
9	3-703-244-00	(Canadian,AEP,UK)...BUSHING, CORD
9	3-703-571-00	(US,E).........BUSHING (S), CORD
10	3-703-473-00	SCREW, TERMINAL
11	3-703-710-11	STICKER, SONY SYMBOL (12)
12	4-812-134-00	RIVET NYLON, 3.5
13	4-875-455-01	(E)....COVER (DIA.20), CAPACITOR
14	4-861-045-00	LABEL, CAUTION
15	4-870-539-00	PLATE, GROUND
16	♠;4-881-415-00	(US,Canadian,E)...HEAT SINK (A)
16	♠;4-902-825-01	(AEP,UK).........HEAT SINK (LARGE)
17	4-881-725-00	RING (TACT), FLEXIBLE
18	4-886-821-11	SCREW, M3 CASE
19	4-886-976-00	ESCUTCHEON, POWER KNOB
20	♠;4-888-047-12	(US,Canadian,AEP,UK)...PLATE, JACK
20	♠;4-888-047-22	(E)...................PLATE, JACK
21	4-902-807-01	(US).........LABEL, MODEL NUMBER
21	4-902-808-01	(Canadian)...LABEL, MODEL NUMBER
21	4-902-809-01	(AEP)........LABEL, MODEL NUMBER
21	4-902-810-01	(UK).........LABEL, MODEL NUMBER
21	4-902-811-01	(E)..........LABEL, MODEL NUMBER
21	4-903-501-01	(G-AEP)......LABEL, MODEL NUMBER
22	♠;4-902-812-01	HOLDER, FUSE PC BOARD
23	♠;4-902-813-01	PLATE, BLIND, CONTROL
24	♠;4-902-814-01	PLATE, LIGHT INTERCEPTION
25	4-902-815-01	KNOB (EQUALIZER, BALANCE, MIC MIXING)
26	4-902-816-01	PLATE (B), INDICATION
27	4-902-817-01	(Canadian,AEP,UK,E)...ILLUMINATOR
27	4-902-819-01	(US)..................ILLUMINATOR
28	♠;4-902-821-01	BRACKET, HEAT SINK
29	♠;4-902-822-01	PLATE, BOTTOM
30	4-902-823-01	KNOB, CONTROL (VOLUME)
31	♠;4-902-826-01	PANEL, SUB
32	4-902-827-01	PANEL
33	♠;4-902-828-01	CHASSIS
34	4-902-829-01	CASE
35	4-902-830-01	KNOB ,T TYPE (POWER-S)
36	♠;4-902-831-01	JOINT (G), KNOB
37	♠;9-911-842-99	(AEP,UK)...SHEET, HEAT INSULATING
38	♠;4-902-847-01	PLATE, LIGHT INTERCEPTION
39	♠;4-902-848-01	HOLDER (C), LED
40	7-621-255-15	SCREW +P 2X3
41	7-685-646-11	SCREW +BVTP 3X8 TYPE2 N-S
42	7-685-650-71	SCREW +BVTP 3X16 TYPE2 IT-3
43	7-685-751-09	SCREW +PTT 3X6 (S)
44	7-685-871-01	SCREW +BVTT 3X6 (S)
45	7-685-872-01	SCREW +BVTT 3X8 (S)
46	7-685-872-09	SCREW +BVTT 3X8 (S)
47	X-4886-405-1	FOOT ASSY
48	X-4902-802-1	PLATE (A) ASSY, INDICATION

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- MMH : mH, UH : μH

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In each case, U : μ, for example:
UA···: μA···, UPA···: μPA···, UPC···: μPC,
UPD···: μPD···

ELECTRICAL PARTS

Ref.No.	Part No.	Description			
501	♠;1-508-810-00	14MM BASE POST			
502	♠;1-508-811-00	BASE POST (14MM) 4P			
503	♠;1-508-812-00	BASE POST (14MM) 5P			
504	⚠.1-526-565-00	(E3)...AC PLUG ADAPTOR			
505	1-533-131-00	HOLDER, FUSE			
506	♠;1-535-139-00	BASE POST 19MM (10MM PITCH) 2P			
507	♠;1-535-140-00	BASE POST 19MM (10MM PITCH) 3P			
508	⚠.1-534-817-XX	(AEP).......CORD, POWER, EULO PLUG			
508	⚠.1-551-511-00	(Canadian)...CORD, POWER			
508	⚠.1-551-628-00	(US).........CORD, POWER			
508	⚠.1-551-472-00	(E)..........CORD, POWER			
508	⚠.1-551-884-00	(UK).........CORD, POWER			
509	♠;1-562-250-00	SOCKET, CONNECTOR 5P			
510	♠;1-562-251-00	SOCKET, CONNECTOR 6P			
511	♠;1-562-327-00	SOCKET, CONNECTOR 3P			
512	♠;1-612-141-11	PC BOARD, MAIN			
513	♠;1-612-142-11	PC BOARD, G-E			
514	♠;1-612-143-11	PC BOARD, FUSE			
515	♠;1-535-444-00	(AEP,UK)...TERMINAL			
516	♠;1-612-144-11	PC BOARD, AUX SW			
517	♠;1-612-145-11	PC BOARD, MIC JACK			
518	♠;1-612-146-11	PC BOARD, LAMP			
519	♠;1-612-147-11	PC BOARD, HP JACK			
520	♠;1-612-148-11	PC BOARD, CONNECTOR			
521	♠;1-612-149-11	PC BOARD, POWER IC			
522	♠;A-4375-188-A	MOUNTED PCB, G-E			
523	♠;A-4388-381-A	(G-AEP).........MOUNTED PCB, MAIN			
523	♠;A-4388-382-A	(E).............MOUNTED PCB, MAIN			
523	♠;A-4388-379-A	(US,Canadian)...MOUNTED PCB, MAIN			
523	♠;A-4388-380-A	(AEP,UK)........MOUNTED PCB, MAIN			
C1	⚠.1-161-744-00	(AEP,UK,E)......CERAMIC	10000PF		400V
C1	⚠.1-161-749-00	(US,Canadian)...CERAMIC	10000PF		125V
C102	1-161-315-00	(G-AEP)...CERAMIC	220PF	10%	50V
C103	1-123-380-00	ELECT	1MF	20%	50V
C104	1-123-380-00	ELECT	1MF	20%	50V
C105	1-123-380-00	ELECT	1MF	20%	50V
C106	1-123-382-00	ELECT	3.3MF	20%	50V
C107	1-161-494-00	CERAMIC	0.022MF	30%	25V
C108	1-161-494-00	CERAMIC	0.022MF	30%	25V
C111	1-161-494-00	CERAMIC	0.022MF	30%	25V
C113	1-161-494-00	CERAMIC	0.022MF	30%	25V
C115	1-161-494-00	CERAMIC	0.022MF	30%	25V
C116	1-123-356-00	(E).......ELECT	10MF	20%	50V
C117	1-161-494-00	CERAMIC	0.022MF	30%	25V
C152	1-161-315-00	(G-AEP)...CERAMIC	220PF	10%	50V
C153	1-123-380-00	ELECT	1MF	20%	50V
C154	1-123-380-00	ELECT	1MF	20%	50V
C155	1-123-380-00	ELECT	1MF	20%	50V
C201	1-123-382-00	ELECT	3.3MF	20%	50V
C202	1-161-271-00	(US,Canadian,AEP,UK,E)...CERAMIC	100PF	5%	50V
C202	1-161-320-00	(G-AEP).....CERAMIC	560PF	10%	50V
C203	1-161-269-00	CERAMIC	68PF	5%	50V
C204	1-123-318-00	ELECT	33MF	20%	16V
C205	1-108-573-00	MYLAR	0.0056MF	5%	50V
C206	1-108-559-00	MYLAR	0.0015MF	5%	50V
C207	1-123-609-00	ELECT	0.33MF	20%	50V
C208	1-123-330-00	ELECT	22MF	20%	16V
C251	1-123-382-00	ELECT	3.3MF	20%	50V
C252	1-161-271-00	(US,Canadian,AEP,UK,E)...CERAMIC	100PF	5%	50V
C252	1-161-320-00	(G-AEP).......CERAMIC	560PF	10%	50V
C253	1-161-269-00	CERAMIC	68PF	5%	50V
C254	1-123-318-00	ELECT	33MF	20%	16V
C255	1-108-573-00	MYLAR	0.0056MF	5%	50V
C256	1-108-559-00	MYLAR	0.0015MF	5%	50V
C257	1-123-609-00	ELECT	0.33MF	20%	50V
C258	1-123-330-00	ELECT	22MF	20%	16V
C301	1-123-612-00	ELECT	2.2MF	20%	50V
C302	1-101-361-00	CERAMIC	150PF	5%	50V
C303	1-101-880-00	CERAMIC	47PF	5%	50V
C304	1-123-611-00	ELECT	1MF	20%	50V
C305	1-123-607-00	ELECT	0.1MF	20%	50V
C306	1-123-608-00	ELECT	0.22MF	20%	50V
C307	1-130-626-00	FILM	0.033MF	5%	50V
C308	1-130-630-00	FILM	0.068MF	5%	50V
C309	1-108-575-00	MYLAR	0.0068MF	5%	50V
C310	1-130-622-00	FILM	0.015MF	5%	50V
C311	1-108-561-00	MYLAR	0.0018MF	5%	50V
C312	1-108-572-00	MYLAR	0.0051MF	5%	50V
C313	1-102-116-00	CERAMIC	680PF	10%	50V
C314	1-123-612-00	ELECT	2.2MF	20%	50V
C315	1-123-611-00	ELECT	1MF	20%	50V
C351	1-123-612-00	ELECT	2.2MF	20%	50V
C352	1-101-361-00	CERAMIC	150PF	5%	50V
C353	1-101-880-00	CERAMIC	47PF	5%	50V
C354	1-123-611-00	ELECT	1MF	20%	50V
C355	1-123-607-00	ELECT	0.1MF	20%	50V
C356	1-123-608-00	ELECT	0.22MF	20%	50V
C357	1-130-626-00	FILM	0.033MF	5%	50V
C358	1-130-630-00	FILM	0.068MF	5%	50V
C359	1-108-575-00	MYLAR	0.0068MF	5%	50V

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ELECTRICAL PARTS

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R201	1-247-171-00	CARBON	47K	5%	1/4W	
R202	1-247-131-00	CARBON	1K	5%	1/4W	
R203	1-246-539-00	CARBON	560K	5%	1/4W	
R204	1-246-471-00	CARBON	820	5%	1/4W	
R205	1-246-539-00	CARBON	560K	5%	1/4W	
R206	1-247-171-00	CARBON	47K	5%	1/4W	
R207	1-247-131-00	CARBON	1K	5%	1/4W	
R208	1-247-179-00	CARBON	100K	5%	1/4W	
R251	1-247-171-00	CARBON	47K	5%	1/4W	
R252	1-247-131-00	CARBON	1K	5%	1/4W	
R253	1-246-539-00	CARBON	560K	5%	1/4W	
R254	1-246-471-00	CARBON	820	5%	1/4W	
R255	1-246-539-00	CARBON	560K	5%	1/4W	
R256	1-247-171-00	CARBON	47K	5%	1/4W	
R257	1-247-131-00	CARBON	1K	5%	1/4W	
R258	1-247-179-00	CARBON	100K	5%	1/4W	
R301	1-247-879-00	CARBON	100K	5%	1/6W	
R302	1-247-879-00	CARBON	100K	5%	1/6W	
R303	1-247-831-00	CARBON	1K	5%	1/6W	
R304	1-247-847-00	CARBON	4.7K	5%	1/6W	
R305	1-247-847-00	CARBON	4.7K	5%	1/6W	
R306	1-247-833-00	CARBON	1.2K	5%	1/6W	
R307	1-247-871-00	CARBON	47K	5%	1/6W	
R308	1-247-851-00	CARBON	6.8K	5%	1/6W	
R309	1-247-821-00	CARBON	390	5%	1/6W	
R310	1-247-833-00	CARBON	1.2K	5%	1/6W	
R311	1-247-871-00	CARBON	47K	5%	1/6W	
R312	1-247-851-00	CARBON	6.8K	5%	1/6W	
R313	1-247-821-00	CARBON	390	5%	1/6W	
R314	1-247-833-00	CARBON	1.2K	5%	1/6W	
R315	1-247-871-00	CARBON	47K	5%	1/6W	
R316	1-247-851-00	CARBON	6.8K	5%	1/6W	
R317	1-247-821-00	CARBON	390	5%	1/6W	
R318	1-247-833-00	CARBON	1.2K	5%	1/6W	
R319	1-247-871-00	CARBON	47K	5%	1/6W	
R320	1-247-851-00	CARBON	6.8K	5%	1/6W	
R321	1-247-821-00	CARBON	390	5%	1/6W	
R322	1-247-833-00	CARBON	1.2K	5%	1/6W	
R323	1-247-871-00	CARBON	47K	5%	1/6W	
R324	1-247-851-00	CARBON	6.8K	5%	1/6W	
R325	1-247-821-00	CARBON	390	5%	1/6W	
R326	1-247-831-00	CARBON	1K	5%	1/6W	
R327	1-247-879-00	CARBON	100K	5%	1/6W	
R328	1-247-843-00	CARBON	3.3K	5%	1/6W	
R329	1-247-821-00	CARBON	390	5%	1/6W	

ELECTRICAL PARTS

Ref.No.	Part No.	Description				
R330	1-247-895-00	CARBON	470K	5%	1/6W	
R331	1-247-835-00	CARBON	1.5K	5%	1/6W	
R332	1-247-835-00	CARBON	1.5K	5%	1/6W	
R351	1-247-879-00	CARBON	100K	5%	1/6W	
R352	1-247-879-00	CARBON	100K	5%	1/6W	
R353	1-247-831-00	CARBON	1K	5%	1/6W	
R354	1-247-847-00	CARBON	4.7K	5%	1/6W	
R355	1-247-847-00	CARBON	4.7K	5%	1/6W	
R356	1-247-833-00	CARBON	1.2K	5%	1/6W	
R357	1-247-871-00	CARBON	47K	5%	1/6W	
R358	1-247-851-00	CARBON	6.8K	5%	1/6W	
R359	1-247-821-00	CARBON	390	5%	1/6W	
R360	1-247-833-00	CARBON	1.2K	5%	1/6W	
R361	1-247-871-00	CARBON	47K	5%	1/6W	
R362	1-247-851-00	CARBON	6.8K	5%	1/6W	
R363	1-247-821-00	CARBON	390	5%	1/6W	
R364	1-247-833-00	CARBON	1.2K	5%	1/6W	
R365	1-247-871-00	CARBON	47K	5%	1/6W	
R366	1-247-851-00	CARBON	6.8K	5%	1/6W	
R367	1-247-821-00	CARBON	390	5%	1/6W	
R368	1-247-833-00	CARBON	1.2K	5%	1/6W	
R369	1-247-871-00	CARBON	47K	5%	1/6W	
R370	1-247-851-00	CARBON	6.8K	5%	1/6W	
R371	1-247-821-00	CARBON	390	5%	1/6W	
R372	1-247-833-00	CARBON	1.2K	5%	1/6W	
R373	1-247-871-00	CARBON	47K	5%	1/6W	
R374	1-247-851-00	CARBON	6.8K	5%	1/6W	
R375	1-247-821-00	CARBON	390	5%	1/6W	
R376	1-247-831-00	CARBON	1K	5%	1/6W	
R377	1-247-879-00	CARBON	100K	5%	1/6W	
R378	1-247-843-00	CARBON	3.3K	5%	1/6W	
R379	1-247-821-00	CARBON	390	5%	1/6W	
R380	1-247-895-00	CARBON	470K	5%	1/6W	
R381	1-247-835-00	CARBON	1.5K	5%	1/6W	
R382	1-247-835-00	CARBON	1.5K	5%	1/6W	
R401	1-247-839-00	CARBON	2.2K	5%	1/6W	
R402	1-247-131-00	CARBON	1K	5%	1/4W	
R403	1-247-131-00	CARBON	1K	5%	1/4W	
R404	1-247-173-00	CARBON	56K	5%	1/4W	
R405	1-247-125-00	CARBON	560	5%	1/4W	
R406	1-247-173-00	CARBON	56K	5%	1/4W	
R407	1-244-881-00	CARBON	2.2K	5%	1/2W	
R408	1-244-881-00	CARBON	2.2K	5%	1/2W	
R409	⚠.1-247-107-00	CARBON	100	5%	1/4W	F
R410	⚠.1-247-107-00	CARBON	100	5%	1/4W	F

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Ref.No.	Part No.	Description				
R411	1-244-873-00	CARBON	1K	5%	1/2W	
R412	1-244-873-00	CARBON	1K	5%	1/2W	
R413	⚠.1-217-151-00	METAL PLATE	0.22	10%	2W	
R414	1-247-131-00	CARBON	1K	5%	1/4W	
R415	1-247-159-00	CARBON	15K	5%	1/4W	
R416	1-247-167-00	CARBON	33K	5%	1/4W	
R417	⚠.1-247-192-00	CARBON	10	5%	1/2W	F
R418	⚠.1-247-192-00	CARBON	10	5%	1/2W	F
R419	1-247-167-00	CARBON	33K	5%	1/4W	
R420	1-246-533-00	CARBON	330K	5%	1/4W	
R421	1-246-535-00	CARBON	390K	5%	1/4W	
R422	1-246-533-00	CARBON	330K	5%	1/4W	
R423	1-247-083-00	CARBON	10	5%	1/4W	
R424	1-246-535-00	CARBON	390K	5%	1/4W	
R425	⚠.1-247-192-00	(G-AEP)...CARBON	10	5%	1/2W	F
R426	⚠.1-247-228-00	CARBON	330	5%	1/2W	F
R427	⚠.1-247-224-00	(AEP,UK)..........CARBON	220	5%	1/2W	F
R427	⚠.1-247-228-00	(US,Canadian,E)...CARBON	330	5%	1/2W	F
R428	1-247-173-00	CARBON	56K	5%	1/4W	
R429	1-247-167-00	CARBON	33K	5%	1/4W	
R430	1-247-173-00	CARBON	56K	5%	1/4W	
R451	1-247-839-00	CARBON	2.2K	5%	1/6W	
R452	1-247-131-00	CARBON	1K	5%	1/4W	
R453	1-247-131-00	CARBON	1K	5%	1/4W	
R454	1-247-173-00	CARBON	56K	5%	1/4W	
R455	1-247-125-00	CARBON	560	5%	1/4W	
R456	1-247-173-00	CARBON	56K	5%	1/4W	
R457	1-244-881-00	CARBON	2.2K	5%	1/2W	
R458	1-244-881-00	CARBON	2.2K	5%	1/2W	
R463	⚠.1-217-151-00	METAL PLATE	0.22	10%	2W	
R464	1-247-131-00	CARBON	1K	5%	1/4W	
R465	1-247-159-00	CARBON	15K	5%	1/4W	
R466	1-247-167-00	CARBON	33K	5%	1/4W	
R467	⚠.1-247-192-00	CARBON	10	5%	1/2W	F
R468	⚠.1-247-192-00	CARBON	10	5%	1/2W	F
R475	⚠.1-247-192-00	(G-AEP)....CARBON	10	5%	1/2W	F
R476	⚠.1-247-228-00	CARBON	330	5%	1/2W	F
R478	1-247-173-00	CARBON	56K	5%	1/4W	
R501	⚠.1-247-083-00	CARBON	10	5%	1/4W	F
R502	1-247-147-00	CARBON	4.7K	5%	1/4W	
R503	⚠.1-247-091-00	CARBON	22	5%	1/4W	F
R504	1-247-147-00	CARBON	4.7K	5%	1/4W	
R505	1-247-179-00	CARBON	100K	5%	1/4W	
R506	1-244-865-00	CARBON	470	5%	1/2W	
R507	⚠.1-247-071-00	(US,Canadian)...CARBON	1	5%	1/4W	F

ELECTRICAL PARTS

Ref.No.	Part No.	Description				
R508	⚠.1-202-725-00	(US,Canadian)...SOLID	3.3M	10%	1/2W	
R509	⚠.1-217-473-00	FUSIBLE	2.2	5%	1W	F
R510	⚠.1-217-473-00	FUSIBLE	2.2	5%	1W	F
R511	⚠.1-212-942-00	FUSIBLE	2.2	5%	1/2W	F
R512	⚠.1-212-935-11	(US,Canadian,AEP,UK)...FUSIBLE	1.1	5%	1/2W	F
R513	⚠.1-212-935-11	(US,Canadian,AEP,UK)...FUSIBLE	1.1	5%	1/2W	F
R551	⚠.1-247-083-00	CARBON	10	5%	1/4W	F
R552	1-247-147-00	CARBON	4.7K	5%	1/4W	
R553	⚠.1-247-091-00	CARBON	22	5%	1/4W	F
R601	1-247-879-00	CARBON	100K	5%	1/6W	
R602	1-247-879-00	CARBON	100K	5%	1/6W	
R603	1-247-831-00	CARBON	1K	5%	1/6W	
R604	1-247-855-00	CARBON	10K	5%	1/6W	
R605	1-247-865-00	CARBON	27K	5%	1/6W	
R606	1-247-879-00	CARBON	100K	5%	1/6W	
R607	1-247-839-00	CARBON	2.2K	5%	1/6W	
RV301	1-230-388-11	RES, VAR, SLIDE 250K/250K(63Hz)				
RV302	1-230-388-11	RES, VAR, SLIDE 250K/250K(250Hz)				
RV303	1-230-388-11	RES, VAR, SLIDE 250K/250K(1KHz)				
RV304	1-230-388-11	RES, VAR, SLIDE 250K/250K(4KHz)				
RV305	1-230-388-11	RES, VAR, SLIDE 250K/250K(12KHz)				
RV401	1-228-839-00	RES, VAR, SLIDE 100K/100K(VOLUME)				
RV402	1-230-389-11	RES, VAR, SLIDE 250K(BALANCE)				
RV601	1-230-376-11	RES, VAR, SLIDE 100K/100K(MIC MIXING)				
RY401	1-515-503-00	RELAY				
S1	1-552-412-00	SWITCH, KEY BOARD				
S2	⚠.1-553-318-00	SWITCH, PUSH (1 KEY)(AC POWER)				
T1	⚠.1-447-784-11	(US,Canadian)...TRANSFORMER, POWER				
T1	⚠.1-447-785-11	(E)............TRANSFORMER, POWER				
T1	⚠.1-447-786-11	(AEP,UK).......TRANSFORMER, POWER				
TM401	1-536-705-00	TERMINAL BOARD (SP)				
VS1	⚠.1-526-576-51	(E)....SELECTOR, POWER VOLTAGE				

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CAPACITORS:
MF:μF, PF:μμF.

RESISTORS
- All resistors are in ohms.
- F : nonflammable

COILS
- MMH : mH, UH : μH

SEMICONDUCTORS
In each case, U : μ, for example:
UA···: μA···, UPA···: μPA···, UPC···: μPC,
UPD···: μPD···

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ELECTRICAL PARTS

Ref.No.	Part No.	Description			
C360	1-130-622-00	FILM	0.015MF	5%	50V
C361	1-108-561-00	MYLAR	0.0018MF	5%	50V
C362	1-108-572-00	MYLAR	0.0051MF	5%	50V
C363	1-102-116-00	CERAMIC	680PF	10%	50V
C364	1-123-612-00	ELECT	2.2MF	20%	50V
C365	1-123-611-00	ELECT	1MF	20%	50V
C401	1-123-380-00	ELECT	1MF	20%	50V
C402	1-123-381-00	ELECT	2.2MF	20%	50V
C403	1-161-319-00	CERAMIC	470PF	10%	50V
C404	1-123-294-00	ELECT	47MF	20%	6.3V
C405	1-123-512-00	ELECT	47MF	20%	50V
C406	1-123-513-00	ELECT	100MF	20%	50V
C407	1-123-356-00	ELECT	10MF	20%	50V
C408	1-108-244-00	MYLAR	0.033MF	10%	50V
C409	1-123-356-00	ELECT	10MF	20%	50V
C410	1-123-465-00	ELECT	220MF	20%	6.3V
C411	1-108-244-00	MYLAR	0.033MF	10%	50V
C412	1-108-239-00	(G-AEP)...MYLAR	0.01MF	10%	50V
C413	1-123-307-00	ELECT	100MF	20%	6.3V
C414	1-108-244-00	(AEP,UK).........MYLAR	0.033MF	10%	50V
C414	1-108-251-00	(US,Canadian,E)...MYLAR	0.1MF		50V
C415	1-108-246-00	MYLAR	0.047MF	10%	50V
C418	1-161-317-00	(G-AEP)...CERAMIC	330PF	10%	50V
C419	1-161-326-00	(G-AEP)...CERAMIC	0.0022MF	30%	50V
C451	1-123-380-00	ELECT	1MF	20%	50V
C452	1-123-381-00	ELECT	2.2MF	20%	50V
C453	1-161-319-00	CERAMIC	470PF	10%	50V
C454	1-123-294-00	ELECT	47MF	20%	6.3V
C455	1-123-512-00	ELECT	47MF	20%	50V
C458	1-108-244-00	MYLAR	0.033MF	10%	50V
C462	1-108-239-00	(G-AEP)...MYLAR	0.01MF	10%	50V
C468	1-161-317-00	(G-AEP)...CERAMIC	330PF	10%	50V
C501	1-123-738-00	(US,Canadian,AEP,UK)...ELECT	4700MF	20%	35V
C501	1-124-362-00	(E).........ELECT	4700MF	20%	42V
C502	1-123-333-00	ELECT	100MF	20%	16V
C503	1-123-330-00	ELECT	22MF	20%	16V
C504	1-123-332-00	ELECT	47MF	20%	16V
C505	1-161-326-00	(G-AEP)...CERAMIC	0.0022MF	30%	50V
C506	1-123-380-00	ELECT	1MF	20%	50V
C507	1-123-487-00	ELECT	470MF	20%	16V
C508	⚠.1-102-394-00	CERAMIC	0.01+0.01MF		250V
C551	1-123-738-00	(US,Canadian,AEP,UK)...ELECT	4700MF	20%	35V
C551	1-124-362-00	(E).........ELECT	4700MF	20%	42V
C552	1-123-333-00	ELECT	100MF	20%	16V
C553	1-123-330-00	ELECT	22MF	20%	16V
C554	1-123-332-00	ELECT	47MF	20%	16V
C555	1-161-326-00	(G-AEP)...CERAMIC	0.0022MF	30%	50V
C601	1-123-609-00	ELECT	0.33MF	20%	50V
C602	1-102-074-00	CERAMIC	0.001MF	10%	50V
C603	1-123-618-00	ELECT	22MF	20%	6.3V
C604	1-123-609-00	ELECT	0.33MF	20%	50V
C605	1-102-123-00	CERAMIC	0.0033MF	10%	50V
C606	1-108-244-00	MYLAR	0.033MF	10%	50V
CNJ1	⚠.1-526-609-00	(E)....CONNECTOR, AC OUTLET			
CNJ101	1-507-788-00	JACK, PIN 4P (PHONO-L)			
CNJ102	1-507-788-00	JACK, PIN 4P (AUX-L)			
CNJ103	1-562-068-00	SOCKET, CONNECTOR 13P(SYSTEM CONTROL 1)			
CNJ151	1-507-788-00	JACK, PIN 4P (PHONO-R)			
CNJ152	1-507-788-00	JACK, PIN 4P (AUX-R)			
CNJ401	1-507-931-11	JACK, LARGE TYPE (HEADPHONES)			
CNJ501	1-562-479-11	SOCKET, CONNECTOR 10P(SYSTEM CONTROL 2)			
CNJ502	1-562-067-00	SOCKET, CONNECTOR 5P (SYSTEM CONTROL 3)			
CNJ601	1-507-930-11	JACK, LARGE TYPE (MIC)			
D401	8-719-107-57	DIODE 1S953-7			
D402	8-719-107-57	DIODE 1S953-7			
D403	8-719-107-57	DIODE 1S953-7			
D451	8-719-107-57	DIODE 1S953-7			
D501	8-719-910-18	DIODE HZ11C2L			
D502	8-719-910-18	DIODE HZ11C2L			
D503	⚠.8-719-300-57	DIODE RB402			
D504	8-719-200-02	DIODE 10E-2			
D505	8-719-200-02	DIODE 10E-2			
D506	8-719-300-79	DIODE SEL1213C			
F1	⚠.1-532-078-00	(AEP,UK,E)......FUSE (1A TIME-LAG)			
F1	⚠.1-532-578-00	(US,Canadian)...FUSE, GLASS TUBE (2A)			
F2	⚠.1-532-078-00	(E)....FUSE (1A TIME-LAG)			
IC101	8-759-800-37	IC LC4066BH			
IC102	8-759-800-33	IC LC7815H			
IC201	8-759-601-02	IC M5218P			
IC301	8-759-601-02	IC M5218P			
IC401	8-749-941-41	(AEP,UK)..........IC STK4141II			
IC401	8-749-941-51	(US,Canadian,E)...IC STK4151II			
L401	♦;1-420-872-00	COIL, AIR CORE			
L451	♦;1-420-872-00	COIL, AIR CORE			
PL101	1-518-527-51	LAMP, PILOT			
PL102	1-518-527-51	LAMP, PILOT			
PL103	1-518-527-51	LAMP, PILOT			
PL104	1-518-527-51	LAMP, PILOT			

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- All resistors are in ohms.
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UPD···: μPD···

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ELECTRICAL PARTS

Ref.No.	Part No.	Description
⚠PS501	.1-532-675-00	(AEP,UK)...LINK, IC
Q101	8-729-117-54	TRANSISTOR 2SA1175
Q102	8-729-245-83	TRANSISTOR 2SC2458
Q103	8-729-245-83	TRANSISTOR 2SC2458
Q104	8-729-245-83	TRANSISTOR 2SC2458
Q105	8-729-245-83	TRANSISTOR 2SC2458
Q106	8-729-245-83	TRANSISTOR 2SC2458
Q107	8-729-245-83	TRANSISTOR 2SC2458
Q108	8-729-245-83	TRANSISTOR 2SC2458
Q109	8-729-245-83	TRANSISTOR 2SC2458
Q110	8-729-117-54	TRANSISTOR 2SA1175
Q111	8-729-117-54	TRANSISTOR 2SA1175
Q112	8-729-245-83	TRANSISTOR 2SC2458
Q113	8-729-117-54	TRANSISTOR 2SA1175
Q114	8-729-117-54	TRANSISTOR 2SA1175
Q115	8-729-117-54	TRANSISTOR 2SA1175
Q116	8-729-245-83	TRANSISTOR 2SC2458
Q301	8-729-245-83	TRANSISTOR 2SC2458
Q302	8-729-245-83	TRANSISTOR 2SC2458
Q303	8-729-245-83	TRANSISTOR 2SC2458
Q304	8-729-245-83	TRANSISTOR 2SC2458
Q305	8-729-245-83	TRANSISTOR 2SC2458
Q306	8-729-245-83	TRANSISTOR 2SC2458
Q351	8-729-245-83	TRANSISTOR 2SC2458
Q352	8-729-245-83	TRANSISTOR 2SC2458
Q353	8-729-245-83	TRANSISTOR 2SC2458
Q354	8-729-245-83	TRANSISTOR 2SC2458
Q355	8-729-245-83	TRANSISTOR 2SC2458
Q356	8-729-245-83	TRANSISTOR 2SC2458
Q401	8-729-201-04	TRANSISTOR 2SC2878
Q402	8-729-204-91	TRANSISTOR 2SA1049
Q403	8-729-245-83	TRANSISTOR 2SC2458
Q404	8-729-117-54	TRANSISTOR 2SA1175
Q405	8-729-245-83	TRANSISTOR 2SC2458
Q406	8-729-245-83	TRANSISTOR 2SC2458
Q407	8-729-117-54	TRANSISTOR 2SA1175
Q408	8-729-117-54	TRANSISTOR 2SA1175
Q451	8-729-201-04	TRANSISTOR 2SC2878
Q452	8-729-204-91	TRANSISTOR 2SA1049
Q501	8-729-180-93	TRANSISTOR 2SD809
Q502	8-729-173-13	TRANSISTOR 2SB731
Q503	8-729-245-83	TRANSISTOR 2SC2458
Q601	8-729-245-83	TRANSISTOR 2SC2458

ELECTRICAL PARTS

Ref.No.	Part No.	Description			
R102	1-246-465-00	(G-AEP)...CARBON	470	5%	1/4W
R103	1-246-545-00	CARBON	1M	5%	1/4W
R104	1-247-147-00	CARBON	4.7K	5%	1/4W
R105	1-246-545-00	CARBON	1M	5%	1/4W
R106	1-247-135-00	CARBON	1.5K	5%	1/4W
R107	1-247-135-00	CARBON	1.5K	5%	1/4W
R108	1-247-135-00	CARBON	1.5K	5%	1/4W
R109	1-246-539-00	CARBON	560K	5%	1/4W
R110	1-246-539-00	CARBON	560K	5%	1/4W
R111	1-246-539-00	CARBON	560K	5%	1/4W
R112	1-247-171-00	CARBON	47K	5%	1/4W
R113	1-246-505-00	CARBON	22K	5%	1/4W
R114	1-246-505-00	CARBON	22K	5%	1/4W
R115	1-247-179-00	CARBON	100K	5%	1/4W
R116	1-247-139-00	CARBON	2.2K	5%	1/4W
R117	1-246-479-00	CARBON	1.8K	5%	1/4W
R118	1-247-155-00	CARBON	10K	5%	1/4W
R119	1-246-495-00	CARBON	8.2K	5%	1/4W
R120	1-247-155-00	CARBON	10K	5%	1/4W
R121	1-246-495-00	CARBON	8.2K	5%	1/4W
R122	1-247-155-00	CARBON	10K	5%	1/4W
R123	1-246-495-00	CARBON	8.2K	5%	1/4W
R124	1-246-529-00	CARBON	220K	5%	1/4W
R125	1-247-155-00	CARBON	10K	5%	1/4W
R126	1-246-495-00	CARBON	8.2K	5%	1/4W
R127	1-246-495-00	CARBON	8.2K	5%	1/4W
R128	1-246-495-00	CARBON	8.2K	5%	1/4W
R129	1-246-495-00	CARBON	8.2K	5%	1/4W
R130	1-247-155-00	CARBON	10K	5%	1/4W
R131	1-247-155-00	CARBON	10K	5%	1/4W
R132	1-247-179-00	CARBON	100K	5%	1/4W
R133	1-247-155-00	CARBON	10K	5%	1/4W
R134	1-247-155-00	CARBON	10K	5%	1/4W
R135	1-247-155-00	CARBON	10K	5%	1/4W
R136	1-247-179-00	CARBON	100K	5%	1/4W
R138	1-247-155-00	CARBON	10K	5%	1/4W
R139	1-247-155-00	CARBON	10K	5%	1/4W
R140	1-247-155-00	CARBON	10K	5%	1/4W
R152	1-246-465-00	(G-AEP)...CARBON	470	5%	1/4W
R153	1-246-545-00	CARBON	1M	5%	1/4W
R154	1-247-147-00	CARBON	4.7K	5%	1/4W
R156	1-247-135-00	CARBON	1.5K	5%	1/4W
R157	1-247-135-00	CARBON	1.5K	5%	1/4W
R158	1-247-135-00	CARBON	1.5K	5%	1/4W
R159	1-246-539-00	CARBON	560K	5%	1/4W
R160	1-246-539-00	CARBON	560K	5%	1/4W
R161	1-246-539-00	CARBON	560K	5%	1/4W

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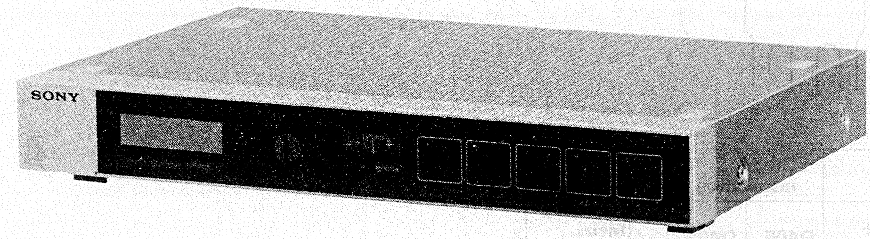
FM STEREO/FM-AM TUNER

[ST-V10L]

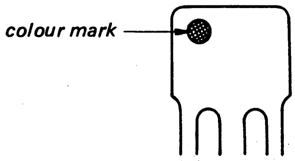


SERVICING NOTE

• IF OFFSET ADJUSTMENT (FM IF)

Diode Installations Depending on the Ceramic Filters (CF101 – 103)

This set employs three ceramic filters (CF101 – 103) which should have the same colour marking to identify their center frequency. Therefore FM IF offset adjustment by diodes (D405, 408) installation is necessary to match the center frequency of the ceramic filters used with FM intermediate frequency.



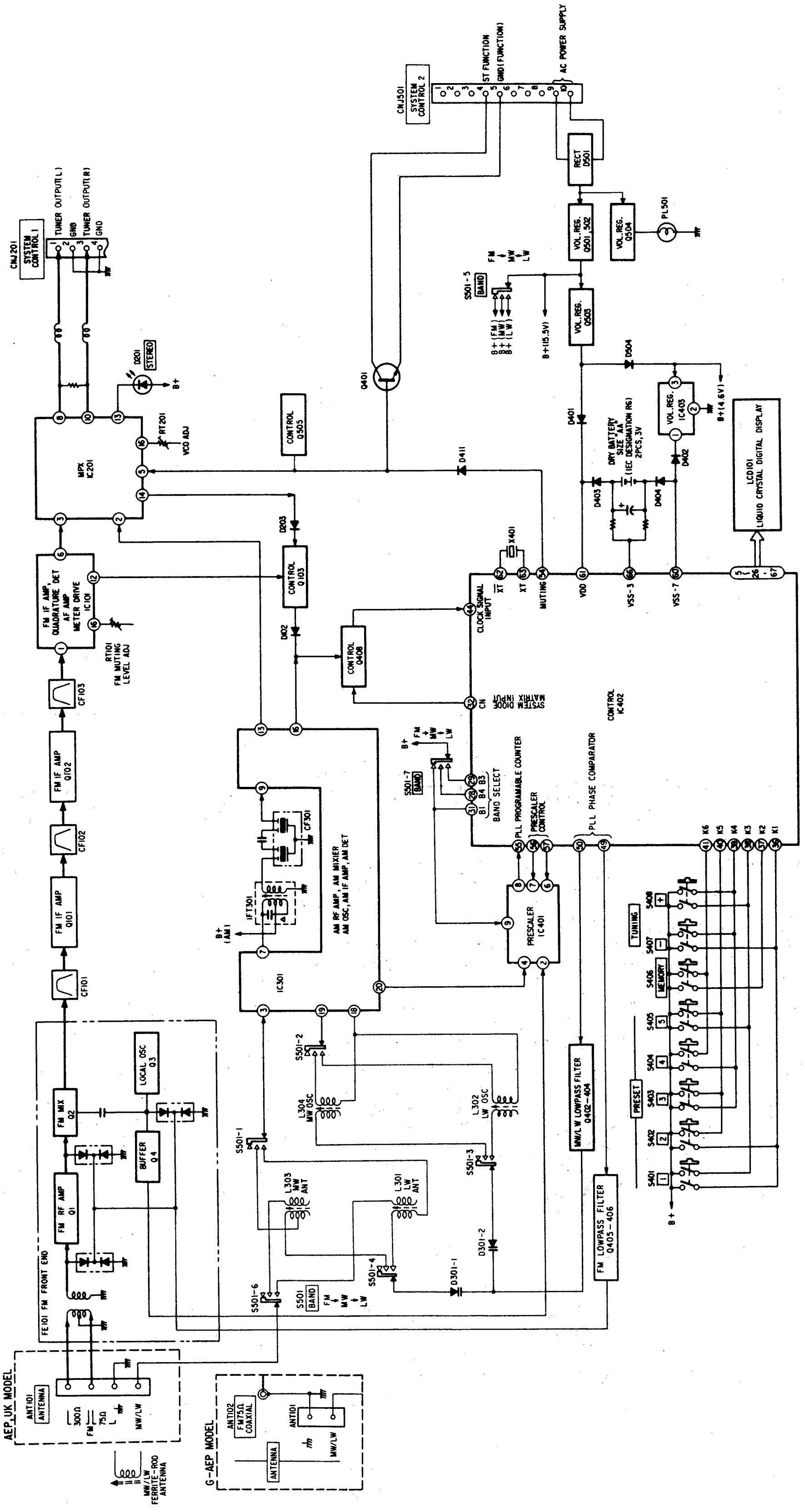
Ceramic filter		Diode installation		FM intermediate frequency (MHz)
Colour mark	Center frequency (MHz)	D405	D408	
White	10.750	X	O	10.750
Red	10.700	X	X	10.700
Black	10.650	O	X	10.650

O: installed
X: not installed

FM intermediate frequency is determined by the three types as shown above. Ceramic filters of same center frequency should be used for CF101 through CF103.

SECTION 1
OUTLINE

1-1. BLOCK DIAGRAM


CNJ501 SYSTEM CONTROL 2
ST FUNCTION
GND (FUNCTION)
AC POWER SUPPLY
RECT D501
VOL. REG. Q501, 502
VOL. REG. Q504
PL501
VOL. REG. Q503
D504
D401
DRY BATTERY SIZE "AA" (IEC DESIGNATION R6) 2PCS, 3V
D403
D404
D402
VOL. REG. IC403
B+(4.6V)
LCD101 LIQUID CRYSTAL DIGITAL DISPLAY
CNJ201 SYSTEM CONTROL 1
TUNER OUTPUT(L)
GND
TUNER OUTPUT(R)
GND
D201
STEREO
B+
RT201 VCO ADJ
MPX IC201
CONTROL Q505
Q401
D411
X401
XT
MUTING
VDD
VSS-3
VSS-7
CLOCK SIGNAL INPUT
D203
CONTROL Q103
D102
CONTROL Q408
CN SYSTEM DIODE MATRIX INPUT
CONTROL IC402
FM IF AMP, QUADRATURE DET AF AMP METER DRIVE IC101
RT101 FM MUTING LEVEL ADJ
CF103
FM IF AMP Q102
CF102
FM IF AMP Q101
CF101
S501-5
BAND
FM MW LW
B+(FM) B+(MW) B+(LW)
B+(15.5V)
S501-7
B1 B4 B3 BAND SELECT
PLL PROGRAMABLE COUNTER
PRESCALER CONTROL
PLL PHASE COMPARATOR
CF301
IFT301
AM RF AMP, AM MIXIER AM OSC, AM IF AMP, AM DET
IC301
B+ (AM)
PRESCALER IC401
MW/LW LOWPASS FILTER Q402-404
FM LOWPASS FILTER Q405-406
S401
S402
S403
S404
S405
S406
S407
S408
TUNING
MEMORY
PRESET
S501-2
L304 MW OSC
L302 LW OSC
S501-1
S501-3
L303 MW ANT
L301 LW ANT
D301-2
D301-1
S501-4
S501-6
S501
FM MIX Q2
LOCAL OSC Q3
BUFFER Q4
FM RF AMP Q1
FE101 FM FRONT END
AEP,UK MODEL
ANT101 ANTENNA
300Ω
FM
75Ω
MW/LW
MW/LW FERRITE-ROD ANTENNA
G-AEP MODEL
ANT102 FM75Ω COAXIAL
ANT101
ANTENNA

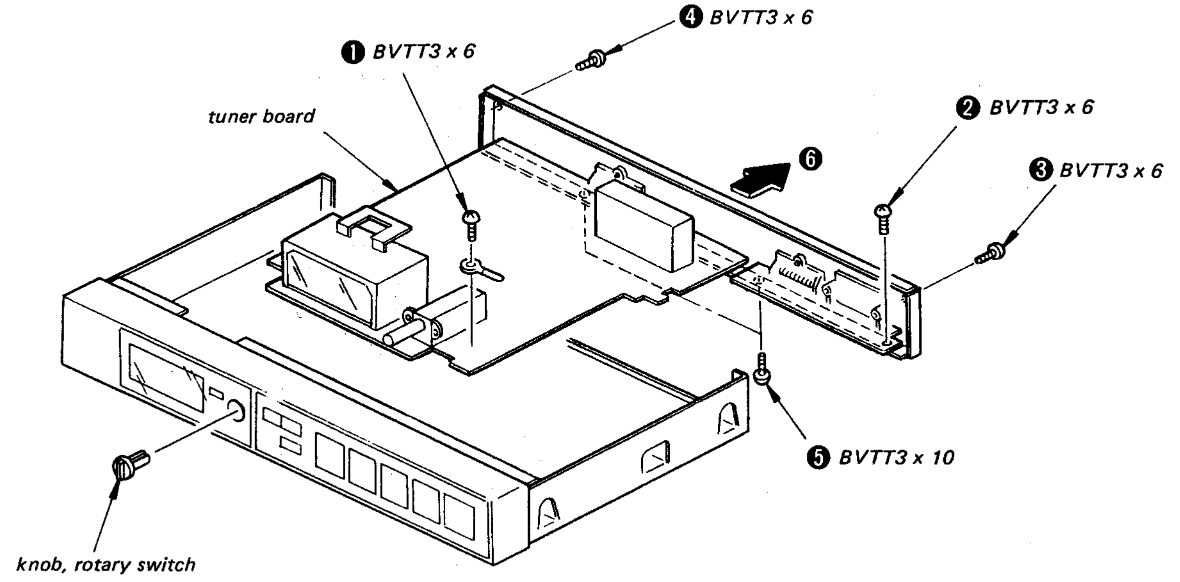
SECTION 2
DISASSEMBLY

Note: Follow the disassembly procedure in the numerical order given.

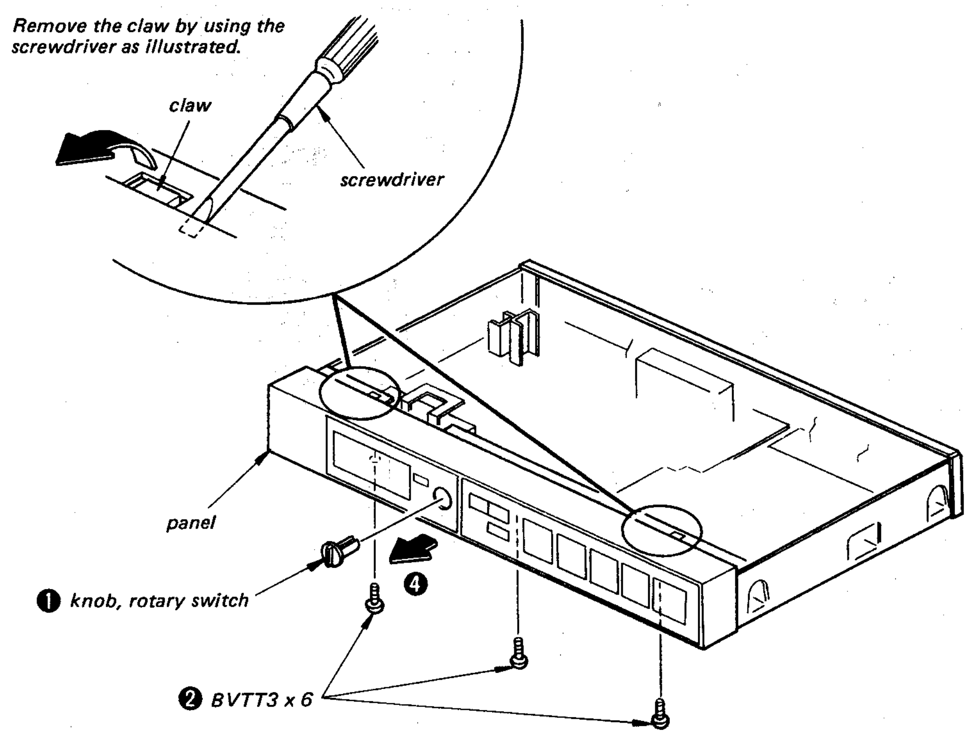
CASE REMOVAL

Remove case by taking out four screws.

TUNER BOARD REMOVAL


❹ BVTT3 x 6
❶ BVTT3 x 6
tuner board
❷ BVTT3 x 6
❻
❸ BVTT3 x 6
❺ BVTT3 x 10
knob, rotary switch

PANEL REMOVAL


Remove the claw by using the screwdriver as illustrated.
claw
screwdriver
panel
❶ knob, rotary switch
❹
❷ BVTT3 x 6

SECTION 3
ADJUSTMENTS

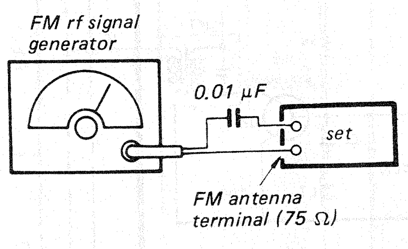
FM SECTION

FM Discriminator Alignment

Setting:

BAND SELECTOR switch . . . . . . FM

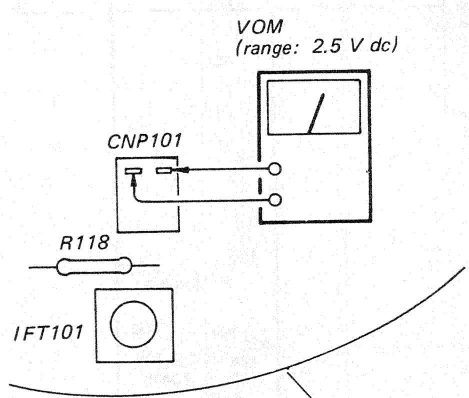
Procedure:


FM rf signal generator
0.01 μF
set
FM antenna terminal (75 Ω)

Carrier frequency: *98 MHz*
Output level: *1 mV (60 dB)*
Modulation: *1 kHz, 40 kHz deviation (100%)*

1. Tune the set to 98 MHz.
2. Adjust IFT101 for 0 V reading on the VOM. . . . NULL Adjustment

Note: When the ceramic filter is replaced, these adjustments should be made (See page ST-2).

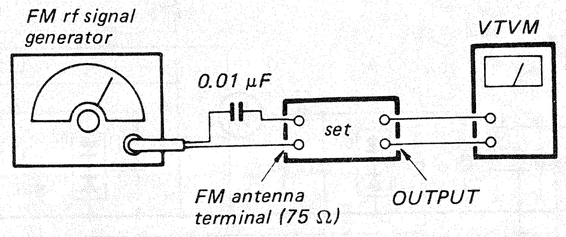

VOM (range: 2.5 V dc)
CNP101
R118
IFT101

FM Muting Level Adjustment

Setting:

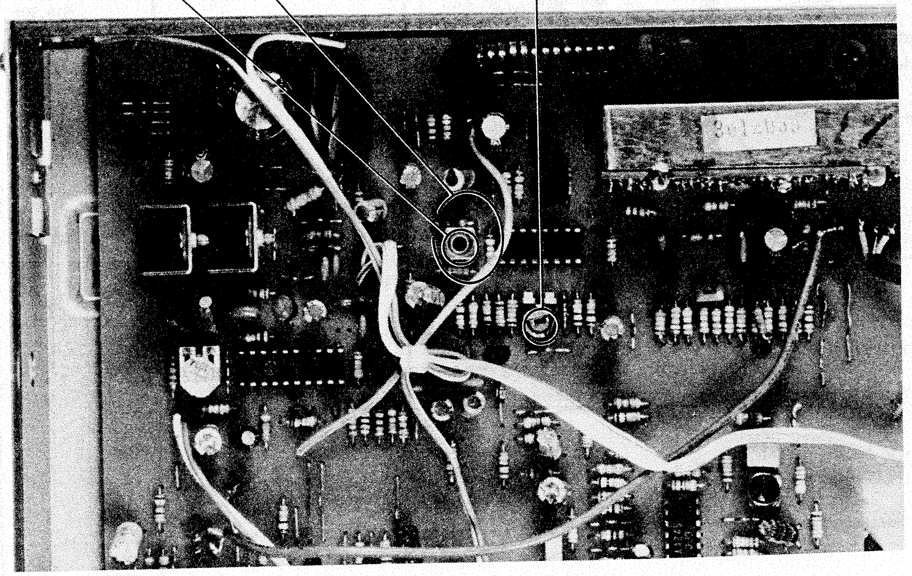
BAND SELECTOR switch . . . . . FM

Procedure:


FM rf signal generator
VTVM
0.01 μF
set
FM antenna terminal (75 Ω)
OUTPUT

Carrier frequency: *98 MHz*
Modulation: *1 kHz, 40 kHz deviation (100%)*
Output level: *31.6 μV (30 dB)*

1. Tune the set to 98 MHz.
2. Adjust RT101 for a point the VTVM reading just drops to 0 V.

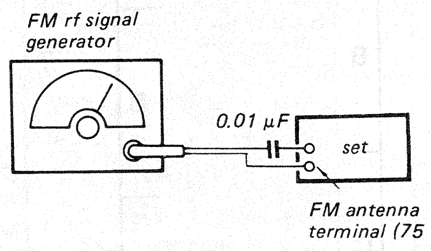

IFT101
RT101

VCO Adjustment

Setting: BAND SELECTOR switch: FM

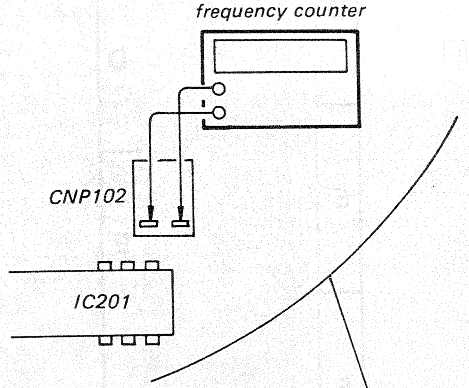
A) Regular Method

Procedure:


FM rf signal generator
0.01 μF
set
FM antenna terminal (75 Ω)

Carrier frequency: *98 MHz*
Modulation: *no modulation*
Output level: *1 mV (60 dB)*

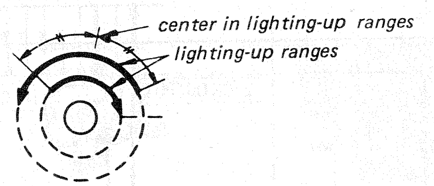
1. Tune the set to 98 MHz.
2. Adjust RT201 for 19 kHz ± 50 Hz on the counter.


frequency counter
CNP102
IC201

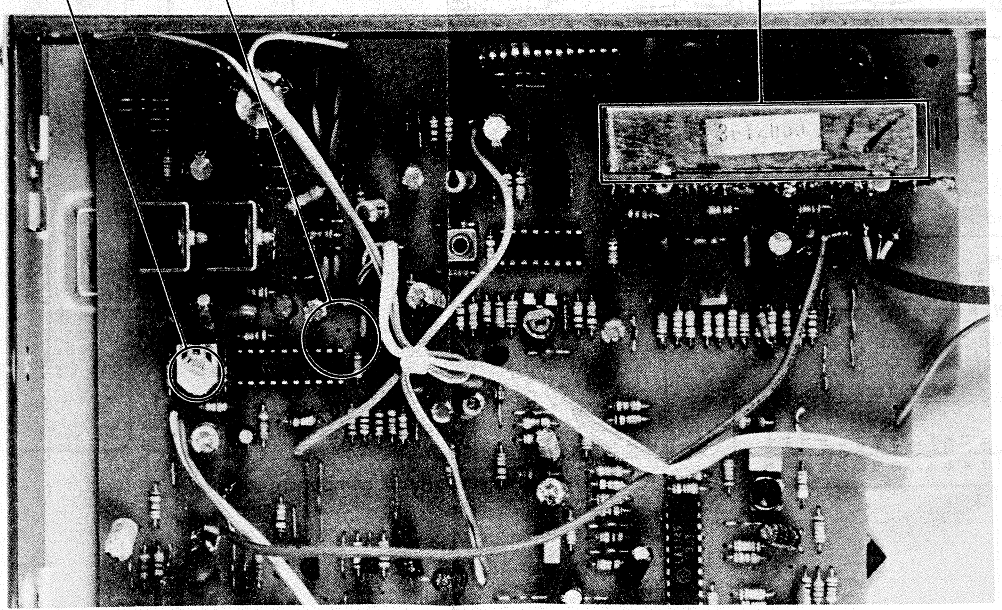
B) Simple Method

Procedure:

1. Tune the set to the FM stereo broadcasting signal.
2. Turn RT201 clockwise or counterclockwise and memorize the lighting-up range of the stereo LED.
3. Secure RT201 at the center of the lighting-up range of both turns as shown below.

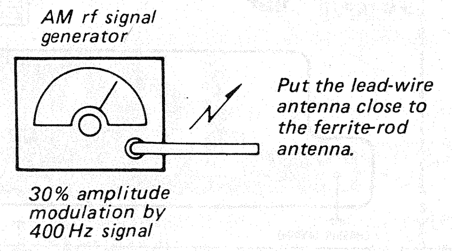

center in lighting-up ranges
lighting-up ranges

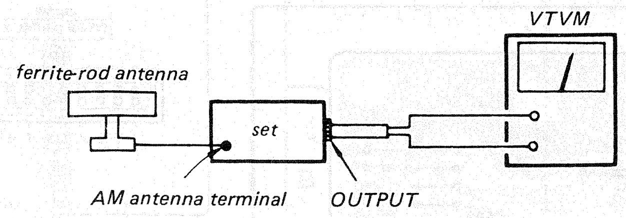
The FM front-end is carefully adjusted at the factory and is supplied as one whole block for replacement.



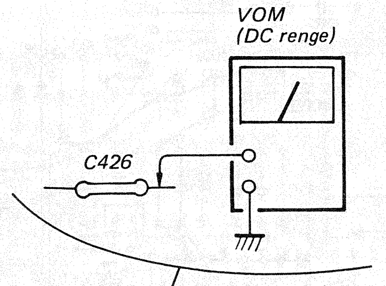
MW/LW SECTION

Setting:
BAND SELECTOR switch: MW/LW


AM rf signal generator
Put the lead-wire antenna close to the ferrite-rod antenna.
30% amplitude modulation by 400 Hz signal


VTVM
ferrite-rod antenna
set
AM antenna terminal
OUTPUT

- Repeat the procedures in each adjustment several times, and the frequency coverage and tracking adjustments should be finally done by the trimmer capacitors.

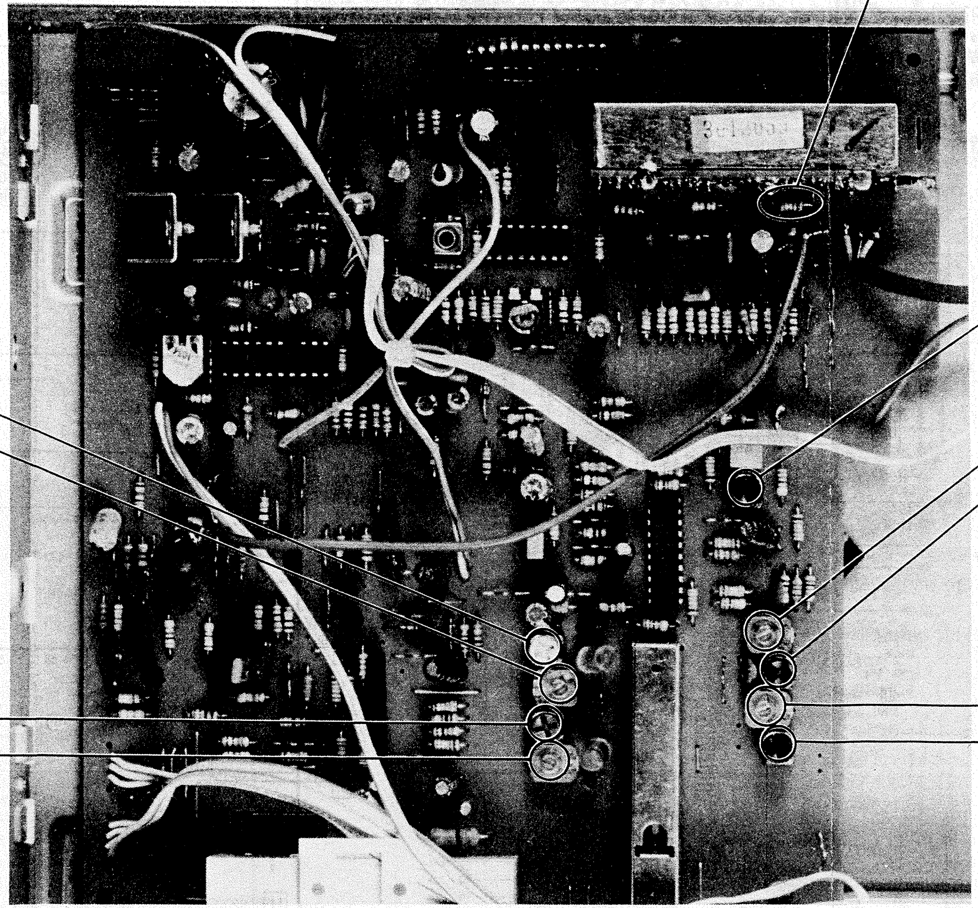

VOM
(DC renge)
C426

LW FREQUENCY COVERAGE ADJUSTMENT

reading on VOM	frequency indication	adjustment part
1 ± 0.2 V	153 kHz	L302
9 ± 0.4 V	344 kHz	CT302

MW FREQUENCY COVERAGE ADJUSTMENT

reading on VOM	frequency indication	adjustment part
1 ± 0.2 V	531 kHz	L304
9 ± 0.4 V	1.602 kHz	CT304



AM IF ALIGNMENT

Adjust for a maximum reading on VTVM.
450 kHz
IFT301

LW TRACKING ADJUSTMENT

Adjust for a maximum reading on VTVM.

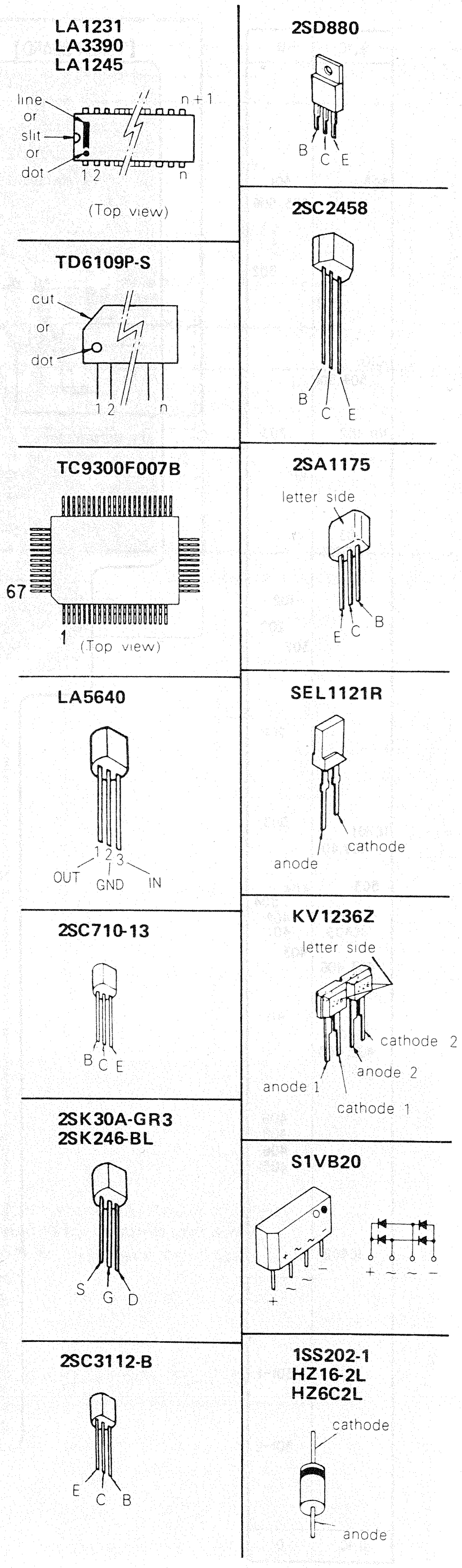
CT301	310 kHz
L301	170 kHz

MW TRACKING ADJUSTMENT

Adjust for a maximum reading on VTVM.

CT303	1,404 kHz
L303	603 kHz

- **Semiconductor Lead Layouts**

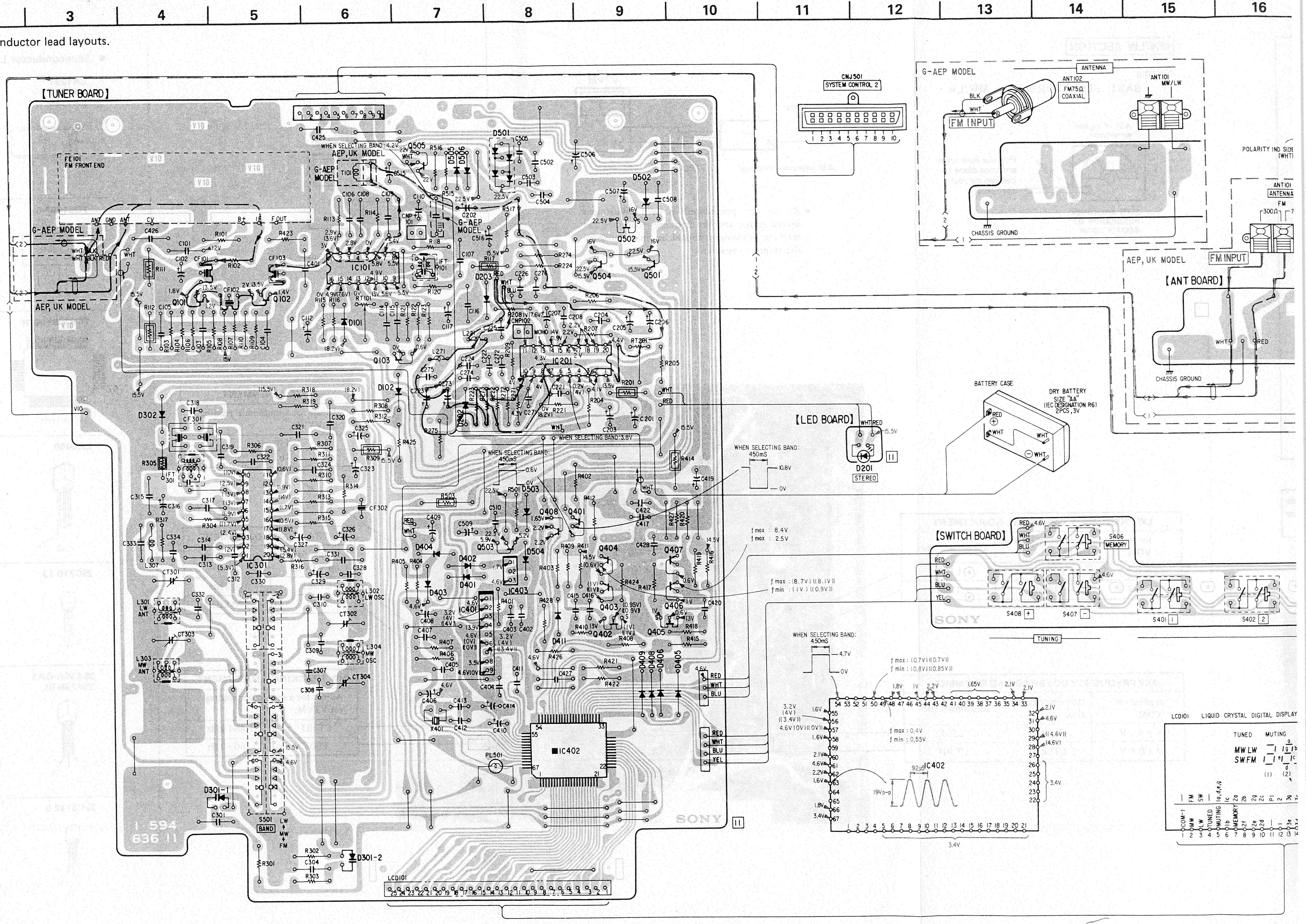

LA1231
LA3390
LA1245
line or slit or dot
1 2
n
n+1
(Top view)
TD6109P-S
cut or dot
1 2
n
TC9300F007B
67
1
(Top view)
LA5640
1 2 3
OUT
GND
IN
2SC710-13
B C E
2SK30A-GR3
2SK246-BL
S G D
2SC3112-B
E C B
2SD880
B C E
2SC2458
B C E
2SA1175
letter side
E C B
SEL1121R
anode
cathode
KV1236Z
letter side
cathode 2
anode 2
anode 1
cathode 1
S1VB20
+ ~ ~ −
1SS202-1
HZ16-2L
HZ6C2L
cathode
anode

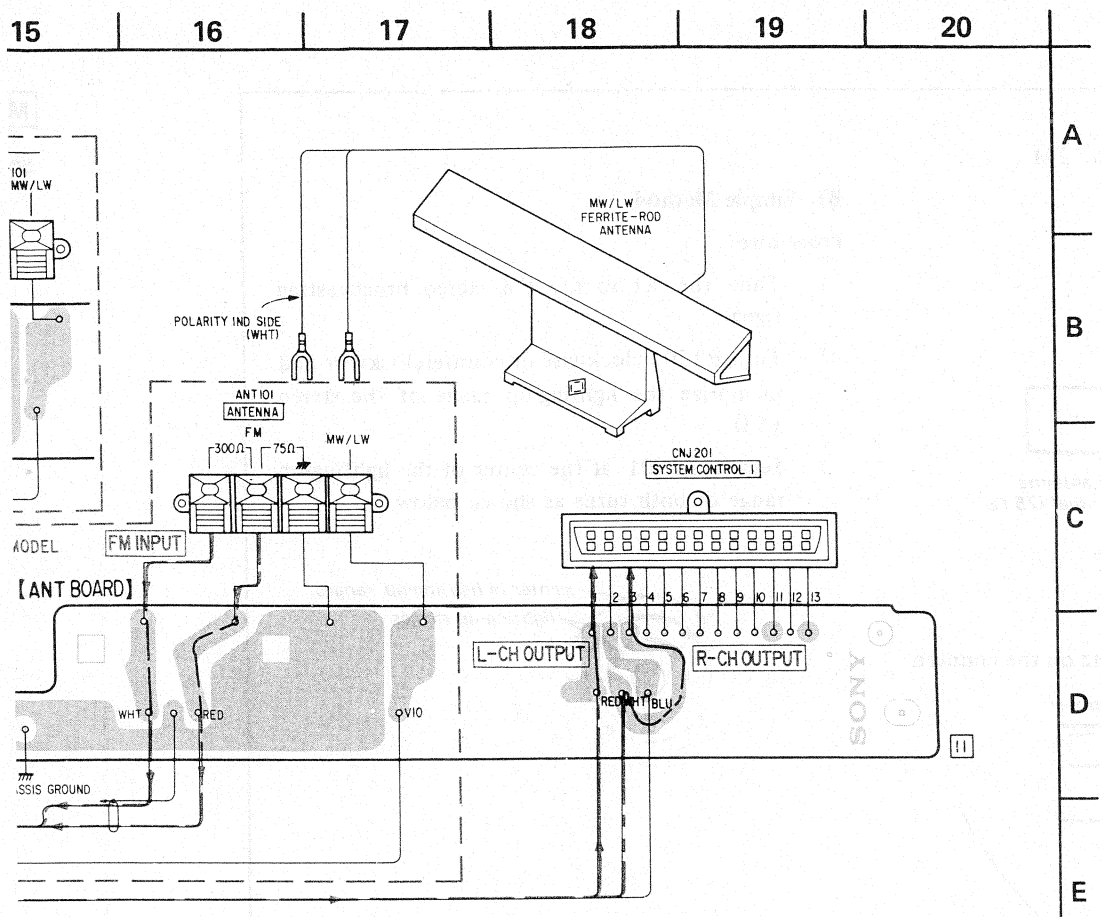
SECTION 4
DIAGRAMS

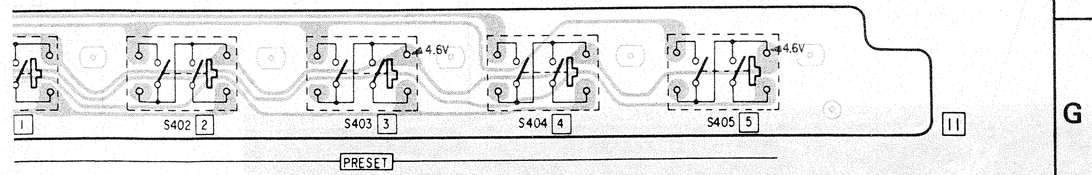
4-1. MOUNTING DIAGRAM

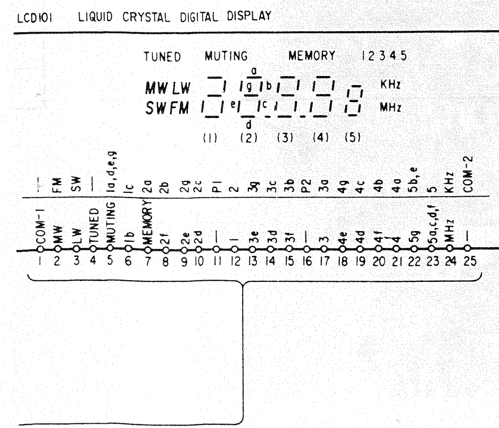
- See page ST-8 for semiconductor lead layouts.

	Q, IC	D
A		
B	505	501 505, 506
C	502 IC101 504, 501 101 102	502 203
D	103 IC201	101 102
E		202 302 201
F	IC301 408, 401 503 404, 407 IC403	503 404 504 402 401
G	403, 406 IC401 402, 405	403 411
H	IC402	409 408 406 405
I		301-1 301-2
J		
	Q, IC	D


1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
【TUNER BOARD】
FE101 FM FRONT END
G-AEP MODEL
AEP, UK MODEL
CNJ501 SYSTEM CONTROL 2
G-AEP MODEL
ANTENNA
ANT102 FM75Ω COAXIAL
ANT101 MW/LW
FM INPUT
CHASSIS GROUND
POLARITY IND SIDE (WHT)
ANT101 ANTENNA FM 300Ω
AEP, UK MODEL
FM INPUT
【ANT BOARD】
CHASSIS GROUND
BATTERY CASE
DRY BATTERY SIZE "AA" (IEC DESIGNATION R6) 2PCS, 3V
【LED BOARD】
D201 STEREO
WHEN SELECTING BAND: 450mS
【SWITCH BOARD】
S406 MEMORY
S408 +
S407 −
S401 1
S402 2
TUNING
SONY
IC402
LCD101 LIQUID CRYSTAL DIGITAL DISPLAY
TUNED MUTING
MW LW
SW FM
IC101
IC201
IC301
IC401
IC403
S501 BAND
LW MW FM
L301 LW ANT
L303 MW ANT
L302 LW OSC
L304 MW OSC
PL501
X401
LCD101
1-594-636-11

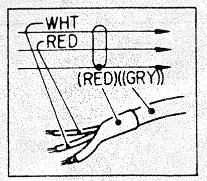

15
16
17
18
19
20
A
B
C
D
E
MW/LW
FERRITE-ROD
ANTENNA
POLARITY IND SIDE
(WHT)
ANT101
ANTENNA
FM
300Ω
75Ω
MW/LW
CNJ201
SYSTEM CONTROL 1
FM INPUT
【ANT BOARD】
L-CH OUTPUT
R-CH OUTPUT
WHT
RED
V10
RED
WHT
BLU
SONY
CHASSIS GROUND
MODEL


F
G
4.6V
4.6V
S402 2
S403 3
S404 4
S405 5
PRESET


LCD101 LIQUID CRYSTAL DIGITAL DISPLAY
TUNED
MUTING
MEMORY
1 2 3 4 5
MW LW
SW FM
KHz
MHz
(1)
(2)
(3)
(4)
(5)
COM-1
COM-2
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25

Note:

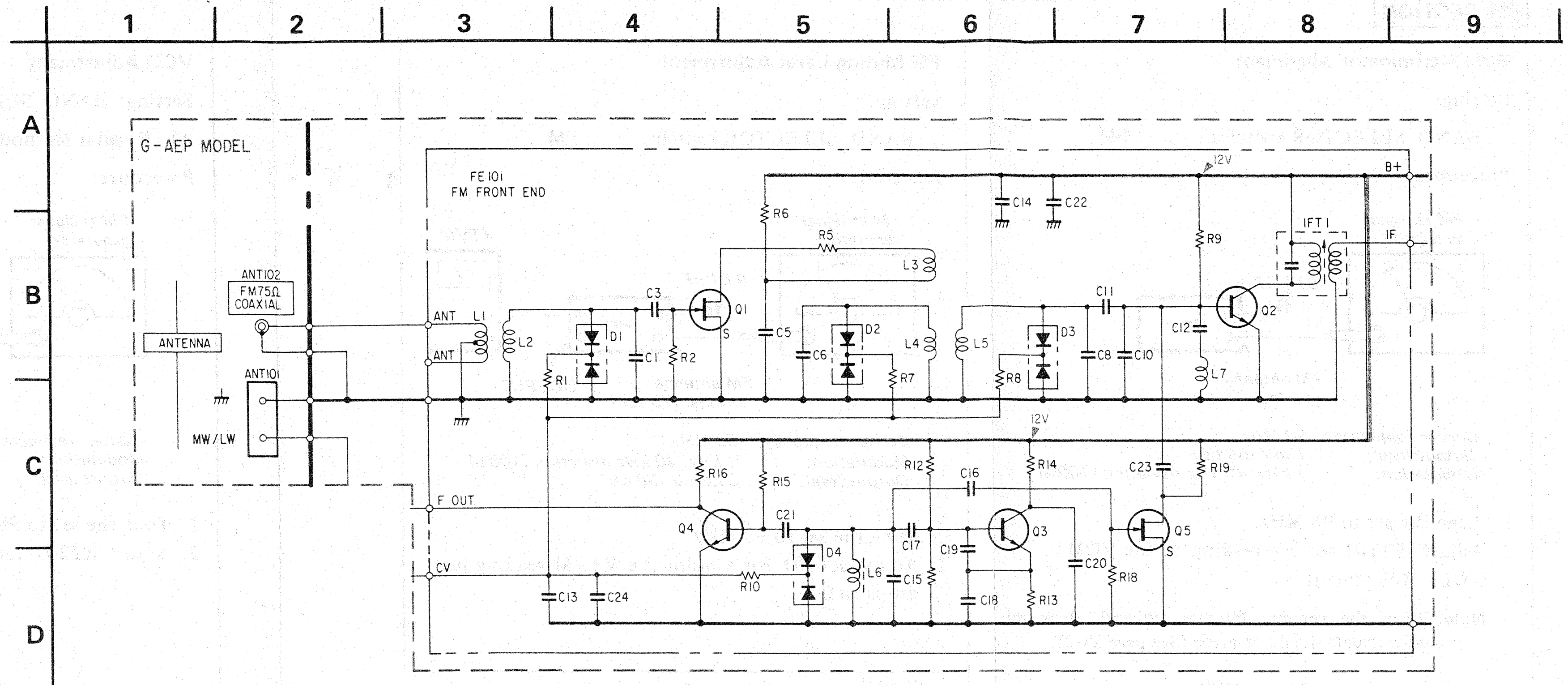
- Color code of sleeving over the end of the jacket.


WHT
RED
(RED)((GRY))

- ○— : parts extracted from the component side.
- ▨ : B + pattern
- ━ ➡ ━ : signal path
- ━ ━ ➡ : L-CH signal path
- ━ ▪ ▪ ➡ : R-CH signal path

H
I
J

4-2. SCHEMATIC DIAGRAM


1
2
3
4
5
6
7
8
9
A
B
C
D
G-AEP MODEL
ANT102
FM75Ω
COAXIAL
ANTENNA
ANT101
MW/LW
FE101
FM FRONT END
ANT
ANT
L1
L2
D1
C1
R1
R2
C3
Q1
C5
R5
L3
R6
C14
C22
D2
C6
R7
L4
L5
D3
R8
C8
C10
C11
C12
L7
R9
12V
IFT1
Q2
B+
IF
F OUT
CV
12V
R16
R15
Q4
C21
D4
R10
L6
C13
C24
R12
C16
C17
C19
C15
C18
Q3
R14
R13
C20
C23
R19
R18
Q5

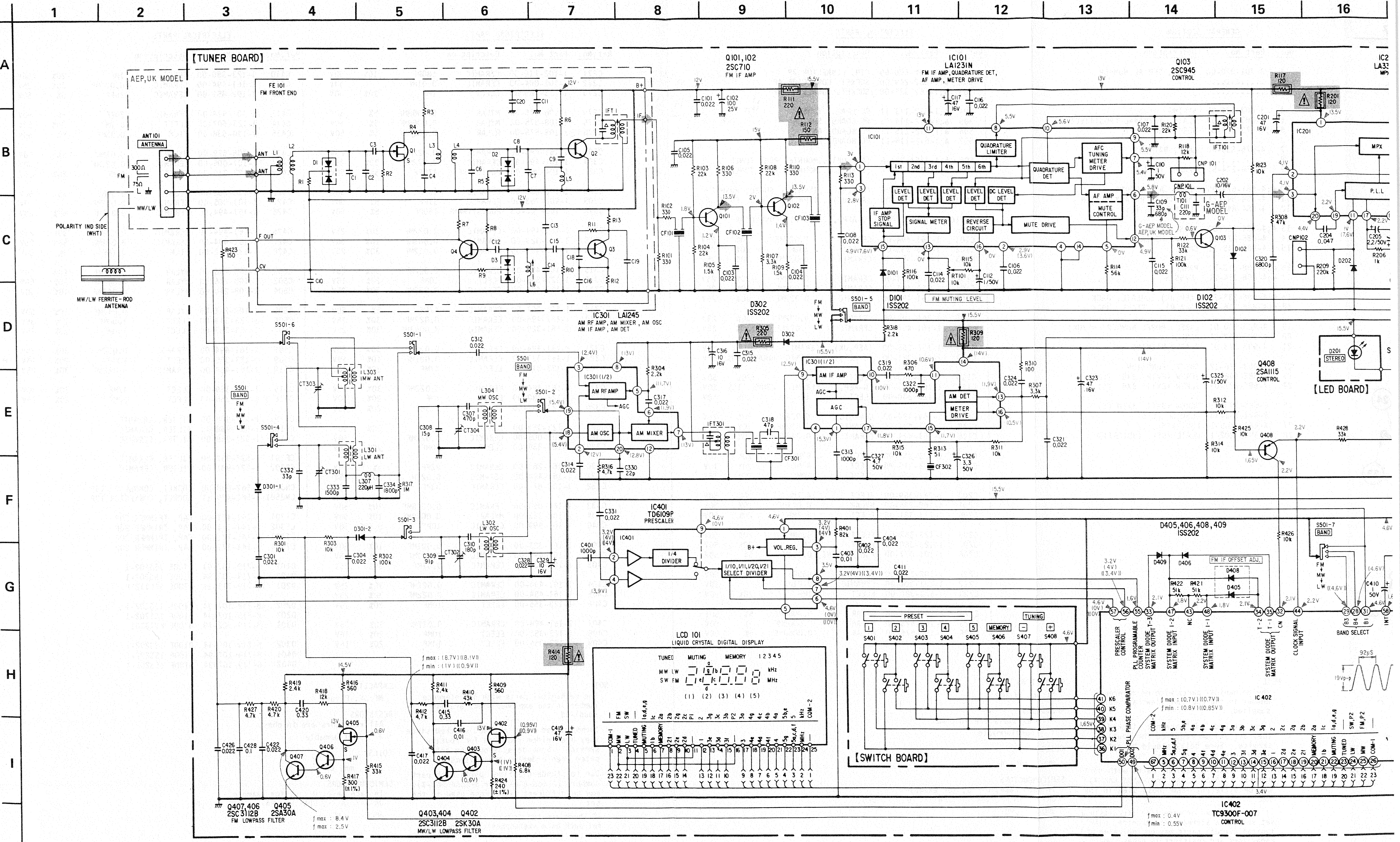
E
F
G
H
I

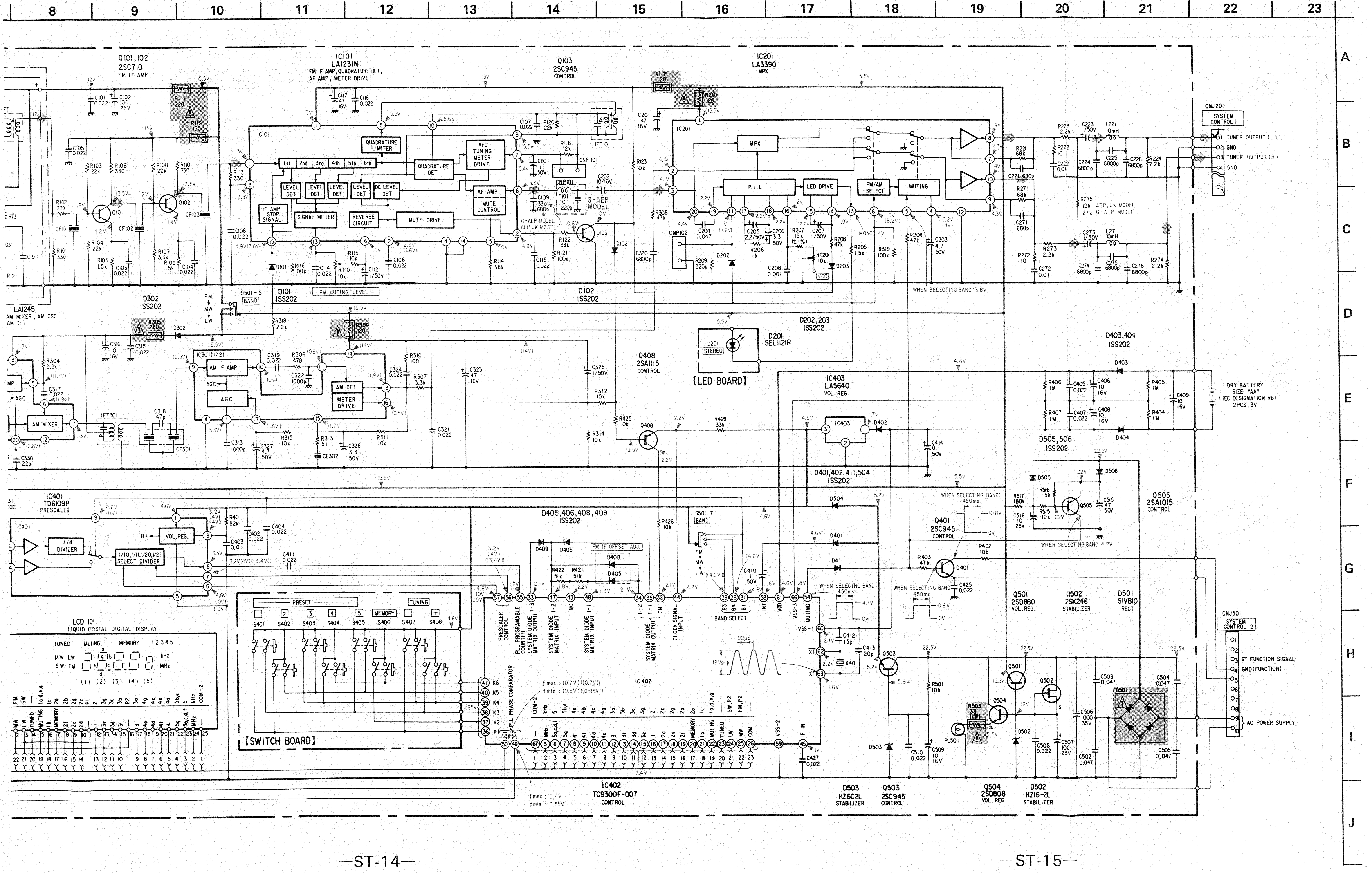
Note:

- All capacitors are in μF unless otherwise noted. pF: μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in ohms, ¼W unless otherwise noted.
  kΩ: 1000 Ω, MΩ: 1000 kΩ
- ─▭─ : nonflammable resistor.
- △ : internal component.
- ☐ : panel designation.
- ➡ : signal path.
- ☐ : adjustment for repair.
- ━ : B+ bus.
- Readings are taken under FM-signal conditions with a VOM.
  (   ): MW
  ((   )): LW

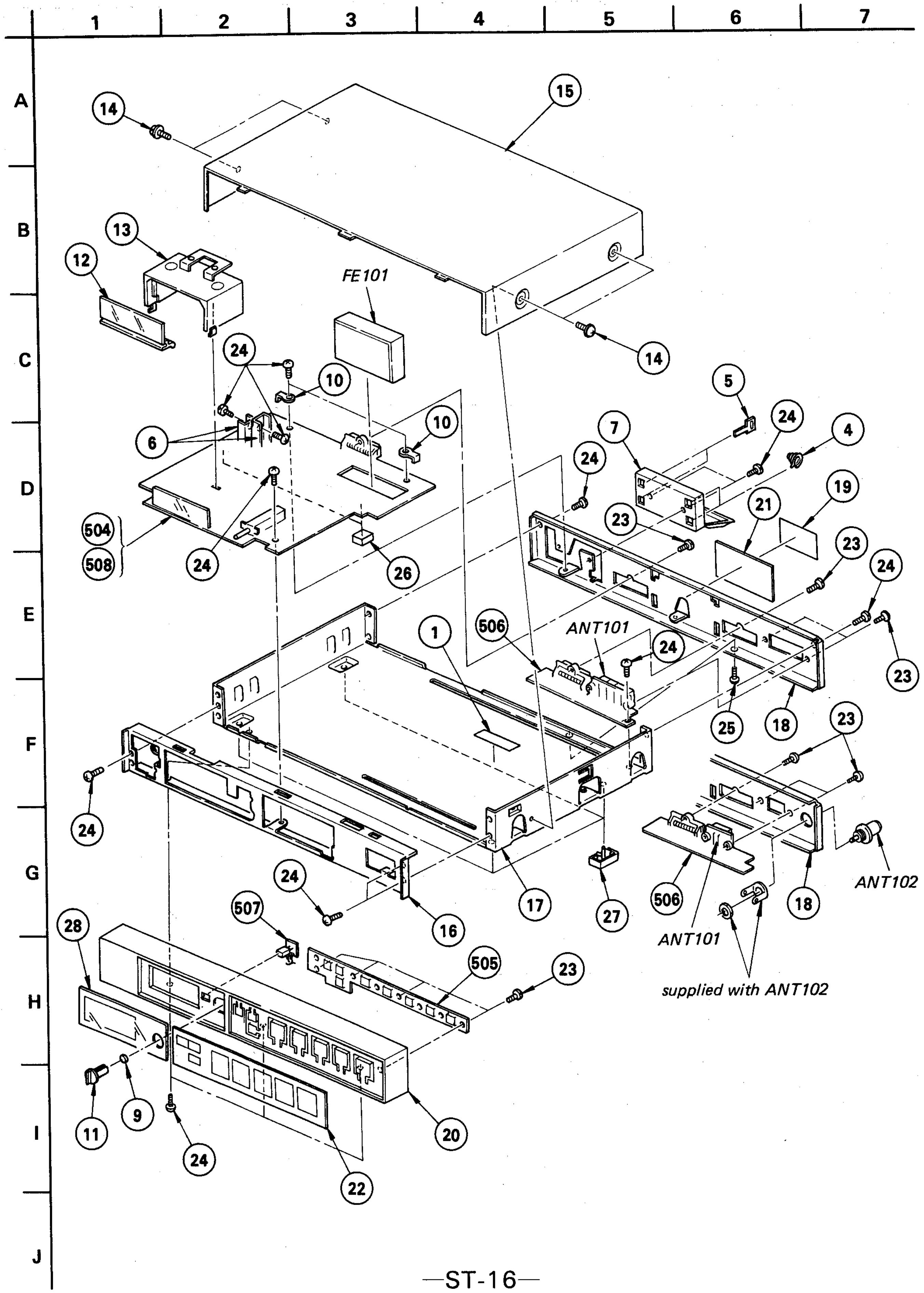
Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

Note: Voltages are measured with a VOM (50kΩ/V).


[TUNER BOARD]
AEP,UK MODEL
ANT101 ANTENNA
FM 300Ω 75Ω MW/LW
POLARITY IND SIDE (WHT)
MW/LW FERRITE-ROD ANTENNA
FE101 FM FRONT END
Q101,102 2SC710 FM IF AMP
IC101 LA1231N FM IF AMP, QUADRATURE DET, AF AMP, METER DRIVE
Q103 2SC945 CONTROL
QUADRATURE LIMITER
QUADRATURE DET
AFC TUNING METER DRIVE
AF AMP
MUTE CONTROL
LEVEL DET
DC LEVEL DET
IF AMP STOP SIGNAL
SIGNAL METER
REVERSE CIRCUIT
MUTE DRIVE
FM MUTING LEVEL
D101 1SS202
D102 1SS202
D302 1SS202
IC301 LA1245 AM RF AMP, AM MIXER, AM OSC AM IF AMP, AM DET
AM RF AMP
AM OSC
AM MIXER
AM IF AMP
AM DET
METER DRIVE
AGC
S501 BAND FM MW LW
L303 MW ANT
L301 LW ANT
L304 MW OSC
L302 LW OSC
IC401 TD6109P PRESCALER
1/4 DIVIDER
VOL.REG.
1/10, 1/11, 1/20, 1/21 SELECT DIVIDER
Q408 2SA1115 CONTROL
D201 STEREO
[LED BOARD]
D405,406,408,409 1SS202
FM IF OFFSET ADJ.
LCD 101 LIQUID CRYSTAL DIGITAL DISPLAY
TUNED MUTING MEMORY 12345
MW LW SW FM kHz MHz
[SWITCH BOARD]
PRESET 1 2 3 4 5 MEMORY TUNING − +
S401 S402 S403 S404 S405 S406 S407 S408
IC402 TC9300F-007 CONTROL
PRESCALER CONTROL
PLL PROGRAMMABLE COUNTER
SYSTEM DIODE MATRIX OUTPUT
SYSTEM DIODE MATRIX INPUT
CLOCK SIGNAL INPUT
BAND SELECT
PLL PHASE COMPARATOR
Q407,406 2SC3112B FM LOWPASS FILTER
Q405 2SA30A
Q403,404 2SC3112B MW/LW LOWPASS FILTER
Q402 2SK30A
f max : 8.4V f max : 2.5V
f max : (0.7V) ((0.7V)) f min : (0.8V) ((0.85V))
f max : 0.4V f min : 0.55V
92μs 19Vp-p
IC2 LA33 MPX P.L.L
G-AEP MODEL


8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
A
B
C
D
E
F
G
H
I
J
Q101,102
2SC710
FM IF AMP
IC101
LA1231N
FM IF AMP, QUADRATURE DET, AF AMP, METER DRIVE
Q103
2SC945
CONTROL
IC201
LA3390
MPX
IF AMP STOP SIGNAL
SIGNAL METER
REVERSE CIRCUIT
MUTE DRIVE
QUADRATURE LIMITER
QUADRATURE DET
AFC TUNING METER DRIVE
AF AMP
MUTE CONTROL
LEVEL DET
DC LEVEL DET
IFT101
CNP101
G-AEP MODEL
G-AEP MODEL AEP, UK MODEL
MPX
P.L.L
LED DRIVE
FM/AM SELECT
MUTING
VCO
MONO
WHEN SELECTING BAND: 3.8V
CNJ201
SYSTEM CONTROL 1
TUNER OUTPUT (L)
GND
TUNER OUTPUT (R)
GND
AEP, UK MODEL
G-AEP MODEL
LA1245
AM MIXER, AM OSC
AM DET
D302
ISS202
S501-5
BAND
FM
MW
LW
D101
ISS202
FM MUTING LEVEL
D102
ISS202
IC301(1/2)
AM IF AMP
AGC
AM DET
METER DRIVE
AM MIXER
IFT301
CF301
CF302
D201
STEREO
D201
SEL1121R
[LED BOARD]
D202,203
ISS202
Q408
2SA1115
CONTROL
IC403
LA5640
VOL. REG.
D403,404
ISS202
DRY BATTERY
SIZE "AA"
(IEC DESIGNATION R6)
2PCS, 3V
D505,506
ISS202
D401,402,411,504
ISS202
Q505
2SA1015
CONTROL
WHEN SELECTING BAND: 450ms
WHEN SELECTING BAND: 4.2V
IC401
TD6109P
PRESCALER
1/4 DIVIDER
VOL. REG.
1/10, 1/11, 1/20, 1/21 SELECT DIVIDER
D405,406,408,409
ISS202
FM IF OFFSET ADJ.
S501-7
BAND
Q401
2SC945
CONTROL
WHEN SELECTING BAND: 450ms
WHEN SELECTNG BAND: 450ms
CNJ501
SYSTEM CONTROL 2
ST FUNCTION SIGNAL
GND (FUNCTION)
AC POWER SUPPLY
LCD 101
LIQUID CRYSTAL DIGITAL DISPLAY
TUNED
MUTING
MEMORY
MW LW
SW FM
kHz
MHz
PRESET
TUNING
MEMORY
S401
S402
S403
S404
S405
S406
S407
S408
[SWITCH BOARD]
PRESCALER CONTROL
PLL PROGRAMABLE COUNTER
SYSTEM DIODE MATRIX OUTPUT
SYSTEM DIODE MATRIX INPUT
CLOCK SIGNAL INPUT
BAND SELECT
PLL PHASE COMPARATOR
f max : 0.4V
f min : 0.55V
f max : (0.7V) ((0.7V))
f min : (0.8V) ((0.85V))
IC402
TC9300F-007
CONTROL
92μS
19Vp-p
X401
Q501
2SD880
VOL. REG.
Q502
2SK246
STABILIZER
D501
SIVB10
RECT
D503
HZ6C2L
STABILIZER
Q503
2SC945
CONTROL
Q504
2SD808
VOL. REG
D502
HZ16-2L
STABILIZER
PL501
R503
33
(1W)

SECTION 5
EXPLODED VIEW AND PARTS LIST



supplied with ANT102

GENERAL SECTION

No.	Part No.	Description
1	3-701-030-00	LABEL, SERIAL NUMBER
2	....	
3	....	
4	3-883-424-00	SPRING
5	3-883-428-00	PLATE, TERMINAL (POSITIVE)
6	♠;4-875-327-01	HEAT SINK
7	4-875-530-00	CASE, BATTERY
8	....	
9	4-879-274-51	SPACER (t=2.5)
10	♠;4-881-629-00	PLATE (A), GROUND
11	4-884-847-21	KNOB (ST), ROTARY SWITCH
12	4-884-848-00	ILLUMINATOR (ST)
13	♠;4-884-856-00	HOUSE, LAMP
14	4-886-821-11	SCREW, M3 CASE
15	4-886-845-11	CASE
16	♠;4-888-213-11	PANEL, SUB
17	♠;4-888-214-21	CHASSIS
18	♠;4-888-235-21	(AEP,UK)...PLATE, JACK
18	♠;4-888-236-02	(G-AEP)....PLATE, JACK
19	4-903-210-01	LABEL, MODEL NUMBER (AE/UK)
20	4-903-212-21	PANEL
21	4-903-213-01	PLATE, MASKING
22	4-903-216-12	SHEET, FUNCTION
23	7-685-646-11	SCREW +BVTP 3X8 TYPE2 N-S
24	7-685-871-01	SCREW +BVTT 3X6 (S)
25	7-685-873-01	SCREW +BVTT 3X10 (S)
26	9-911-841-XX	CUSHION (t=5)
27	X-4886-405-1	FOOT ASSY
28	X-4903-202-1	PLATE ASSY, INDICATION

ELECTRICAL PARTS

Ref.No.	Part No.	Description			
501	♠;1-560-060-00	PIN, CONNECTOR 2P			
502	♠;1-562-249-00	SOCKET, CONNECTOR 4P			
503	♠;1-562-327-00	SOCKET, CONNECTOR 3P			
504	♠;1-612-113-11	PC BOARD, TUNER			
505	♠;1-612-114-11	PC BOARD, SWITCH			
506	♠;1-612-115-11	PC BOARD, ANT			
507	♠;1-612-116-11	PC BOARD, LED			
508	♠;A-4351-381-A	(AEP,UK)...MOUNTED PCB, TUNER			
508	♠;A-4351-382-A	(G-AEP)....MOUNTED PCB, TUNER			
ANT101	1-536-707-00	(G-AEP)....TERMINAL BOARD, PUSH 2P			
ANT101	1-536-708-00	(AEP,UK)...TERMINAL BOARD, PUSH 4P			
ANT102	1-591-919-00	(G-AEP)....SOCKET, CONNECTOR			
C101	1-161-494-00	CERAMIC	0.022MF	30%	25V
C102	1-123-333-00	ELECT	100MF	20%	25V
C103	1-161-494-00	CERAMIC	0.022MF	30%	25V
C104	1-161-494-00	CERAMIC	0.022MF	30%	25V
C105	1-161-494-00	CERAMIC	0.022MF	30%	25V
C106	1-161-494-00	CERAMIC	0.022MF	30%	25V
C107	1-161-494-00	CERAMIC	0.022MF	30%	25V
C108	1-161-494-00	CERAMIC	0.022MF	30%	25V
C109	1-161-265-00	(AEP,UK)...CERAMIC	33PF	5%	50V
C109	1-161-321-00	(G-AEP)....CERAMIC	680PF	10%	50V
C110	1-123-380-00	ELECT	1MF	20%	50V
C111	1-161-315-00	(G-AEP)....CERAMIC	220PF	10%	50V
C112	1-123-380-00	ELECT	1MF	20%	50V
C114	1-161-494-00	CERAMIC	0.022MF	30%	25V
C115	1-161-494-00	CERAMIC	0.022MF	30%	25V
C116	1-161-494-00	CERAMIC	0.022MF	30%	25V
C117	1-123-319-00	ELECT	47MF	20%	16V
C201	1-123-319-00	ELECT	47MF	20%	16V
C202	1-123-356-00	ELECT	10MF	20%	16V
C203	1-123-369-00	ELECT	4.7MF	20%	50V
C204	1-108-246-00	MYLAR	0.047MF	10%	50V
C205	1-123-381-00	ELECT	2.2MF	20%	50V
C206	1-123-382-00	ELECT	3.3MF	20%	50V
C207	1-123-380-00	ELECT	1MF	20%	50V
C208	1-104-077-00	POLYSTYRENE	0.001MF	5%	50V
C221	1-102-116-00	CERAMIC	680PF	10%	50V
C222	1-101-004-00	CERAMIC	0.01MF		50V
C223	1-123-380-00	ELECT	1MF	20%	50V
C224	1-108-575-00	MYLAR	0.0068MF	5%	50V
C225	1-108-575-00	MYLAR	0.0068MF	5%	50V
C226	1-108-575-00	MYLAR	0.0068MF	5%	50V

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- All resistors are in ohms.
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In each case, U : µ, for example:
UA···: µA···, UPA···: µPA···, UPC···: µPC,
UPD···: µPD···

GENERAL SECTION

No.	Part No.	Description
1	3-701-030-00	LABEL, SERIAL NUMBER
2	....	
3	....	
4	3-883-424-00	SPRING
5	3-883-428-00	PLATE, TERMINAL (POSITIVE)
6	♠;4-875-327-01	HEAT SINK
7	4-875-530-00	CASE, BATTERY
8	....	
9	4-879-274-51	SPACER (t=2.5)
10	♠;4-881-629-00	PLATE (A), GROUND
11	4-884-847-21	KNOB (ST), ROTARY SWITCH
12	4-884-848-00	ILLUMINATOR (ST)
13	♠;4-884-856-00	HOUSE, LAMP
14	4-886-821-11	SCREW, M3 CASE
15	4-886-845-11	CASE
16	♠;4-888-213-11	PANEL, SUB
17	♠;4-888-214-21	CHASSIS
18	♠;4-888-235-21	(AEP,UK)...PLATE, JACK
18	♠;4-888-236-02	(G-AEP)....PLATE, JACK
19	4-903-210-01	LABEL, MODEL NUMBER (AE/UK)
20	4-903-212-21	PANEL
21	4-903-213-01	PLATE, MASKING
22	4-903-216-12	SHEET, FUNCTION
23	7-685-646-11	SCREW +BVTP 3X8 TYPE2 N-S
24	7-685-871-01	SCREW +BVTT 3X6 (S)
25	7-685-873-01	SCREW +BVTT 3X10 (S)
26	9-911-841-XX	CUSHION (t=5)
27	X-4886-405-1	FOOT ASSY
28	X-4903-202-1	PLATE ASSY, INDICATION

ELECTRICAL PARTS

Ref.No.	Part No.	Description			
501	♠;1-560-060-00	PIN, CONNECTOR 2P			
502	♠;1-562-249-00	SOCKET, CONNECTOR 4P			
503	♠;1-562-327-00	SOCKET, CONNECTOR 3P			
504	♠;1-612-113-11	PC BOARD, TUNER			
505	♠;1-612-114-11	PC BOARD, SWITCH			
506	♠;1-612-115-11	PC BOARD, ANT			
507	♠;1-612-116-11	PC BOARD, LED			
508	♠;A-4351-381-A	(AEP,UK)...MOUNTED PCB, TUNER			
508	♠;A-4351-382-A	(G-AEP)....MOUNTED PCB, TUNER			
ANT101	1-536-707-00	(G-AEP)....TERMINAL BOARD, PUSH 2P			
ANT101	1-536-708-00	(AEP,UK)...TERMINAL BOARD, PUSH 4P			
ANT102	1-591-919-00	(G-AEP)....SOCKET, CONNECTOR			
C101	1-161-494-00	CERAMIC	0.022MF	30%	25V
C102	1-123-333-00	ELECT	100MF	20%	25V
C103	1-161-494-00	CERAMIC	0.022MF	30%	25V
C104	1-161-494-00	CERAMIC	0.022MF	30%	25V
C105	1-161-494-00	CERAMIC	0.022MF	30%	25V
C106	1-161-494-00	CERAMIC	0.022MF	30%	25V
C107	1-161-494-00	CERAMIC	0.022MF	30%	25V
C108	1-161-494-00	CERAMIC	0.022MF	30%	25V
C109	1-161-265-00	(AEP,UK)...CERAMIC	33PF	5%	50V
C109	1-161-321-00	(G-AEP)....CERAMIC	680PF	10%	50V
C110	1-123-380-00	ELECT	1MF	20%	50V
C111	1-161-315-00	(G-AEP)....CERAMIC	220PF	10%	50V
C112	1-123-380-00	ELECT	1MF	20%	50V
C114	1-161-494-00	CERAMIC	0.022MF	30%	25V
C115	1-161-494-00	CERAMIC	0.022MF	30%	25V
C116	1-161-494-00	CERAMIC	0.022MF	30%	25V
C117	1-123-319-00	ELECT	47MF	20%	16V
C201	1-123-319-00	ELECT	47MF	20%	16V
C202	1-123-356-00	ELECT	10MF	20%	16V
C203	1-123-369-00	ELECT	4.7MF	20%	50V
C204	1-108-246-00	MYLAR	0.047MF	10%	50V
C205	1-123-381-00	ELECT	2.2MF	20%	50V
C206	1-123-382-00	ELECT	3.3MF	20%	50V
C207	1-123-380-00	ELECT	1MF	20%	50V
C208	1-104-077-00	POLYSTYRENE	0.001MF	5%	50V
C221	1-102-116-00	CERAMIC	680PF	10%	50V
C222	1-101-004-00	CERAMIC	0.01MF		50V
C223	1-123-380-00	ELECT	1MF	20%	50V
C224	1-108-575-00	MYLAR	0.0068MF	5%	50V
C225	1-108-575-00	MYLAR	0.0068MF	5%	50V
C226	1-108-575-00	MYLAR	0.0068MF	5%	50V

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ELECTRICAL PARTS

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C271	1-102-116-00	CERAMIC	680PF	10%	50V
C272	1-101-004-00	CERAMIC	0.01MF		50V
C273	1-123-380-00	ELECT	1MF	20%	50V
C274	1-108-575-00	MYLAR	0.0068MF	5%	50V
C275	1-108-575-00	MYLAR	0.0068MF	5%	50V
C276	1-108-575-00	MYLAR	0.0068MF	5%	50V
C301	1-161-494-00	CERAMIC	0.022MF	30%	25V
C304	1-161-494-00	CERAMIC	0.022MF	30%	25V
C307	1-104-069-00	POLYSTYRENE	470PF	5%	50V
C308	1-102-880-00	CERAMIC	15PF	5%	50V
C309	1-102-763-00	CERAMIC	91PF	5%	50V
C310	1-103-707-00	POLYSTYRENE	180PF	5%	50V
C312	1-161-494-00	CERAMIC	0.022MF	30%	25V
C313	1-161-323-00	CERAMIC	0.001MF	10%	50V
C314	1-161-494-00	CERAMIC	0.022MF	30%	25V
C315	1-161-494-00	CERAMIC	0.022MF	30%	25V
C316	1-123-356-00	ELECT	10MF	20%	16V
C317	1-161-494-00	CERAMIC	0.022MF	30%	25V
C318	1-161-267-00	CERAMIC	47PF	5%	50V
C319	1-161-494-00	CERAMIC	0.022MF	30%	25V
C320	1-161-329-00	CERAMIC	0.0068MF	30%	25V
C321	1-161-494-00	CERAMIC	0.022MF	30%	25V
C322	1-161-323-00	CERAMIC	0.001MF	10%	50V
C323	1-123-319-00	ELECT	47MF	20%	16V
C324	1-161-494-00	CERAMIC	0.022MF	30%	25V
C325	1-123-380-00	ELECT	1MF	20%	50V
C326	1-123-382-00	ELECT	3.3MF	20%	50V
C327	1-123-369-00	ELECT	4.7MF	20%	50V
C328	1-101-005-00	CERAMIC	0.022MF		50V
C329	1-123-356-00	ELECT	10MF	20%	16V
C330	1-161-263-00	CERAMIC	22PF	5%	50V
C331	1-161-494-00	CERAMIC	0.022MF	30%	25V
C332	1-102-877-00	CERAMIC	33PF	5%	50V
C333	1-161-053-00	CERAMIC	0.0015MF	30%	50V
C334	1-108-352-00	MYLAR	0.0018MF	10%	50V
C340	1-101-999-00	CERAMIC	10PF	0.5PF	50V
C401	1-161-323-00	CERAMIC	0.001MF	10%	50V
C402	1-161-494-00	CERAMIC	0.022MF	30%	25V
C403	1-161-330-00	CERAMIC	0.01MF	30%	25V
C404	1-161-494-00	CERAMIC	0.022MF	30%	25V
C405	1-161-494-00	CERAMIC	0.022MF	30%	25V
C406	1-123-356-00	ELECT	10MF	20%	16V
C407	1-161-494-00	CERAMIC	0.022MF	30%	25V
C408	1-123-356-00	ELECT	10MF	20%	16V
C409	1-123-356-00	ELECT	10MF	20%	16V

ELECTRICAL PARTS

Ref.No.	Part No.	Description			
C410	1-123-380-00	ELECT	1MF	20%	50V
C411	1-161-494-00	CERAMIC	0.022MF	30%	25V
C412	1-102-851-00	CERAMIC	15PF	5%	50V
C413	1-101-974-00	CERAMIC	20PF	5%	50V
C414	1-123-607-00	ELECT	0.1MF	20%	50V
C415	1-130-638-00	FILM	0.33MF	5%	50V
C416	1-108-579-00	MYLAR	0.01MF	5%	50V
C417	1-101-005-00	CERAMIC	0.022MF		50V
C419	1-123-319-00	ELECT	47MF	20%	16V
C420	1-130-638-00	FILM	0.33MF	5%	50V
C422	1-101-005-00	CERAMIC	0.022MF		50V
C425	1-161-494-00	CERAMIC	0.022MF	30%	25V
C426	1-161-494-00	CERAMIC	0.022MF	30%	25V
C427	1-161-494-00	CERAMIC	0.022MF	30%	25V
C428	1-130-632-00	FILM	0.1MF	5%	50V
C502	1-108-246-00	MYLAR	0.047MF	10%	50V
C503	1-108-246-00	MYLAR	0.047MF	10%	50V
C504	1-108-246-00	MYLAR	0.047MF	10%	50V
C505	1-108-246-00	MYLAR	0.047MF	10%	50V
C506	1-123-349-00	ELECT	1000MF	20%	35V
C507	1-123-333-00	ELECT	100MF	20%	25V
C508	1-161-494-00	CERAMIC	0.022MF	30%	25V
C509	1-123-356-00	ELECT	10MF	20%	16V
C510	1-161-494-00	CERAMIC	0.022MF	30%	25V
C515	1-123-359-00	ELECT	47MF	20%	50V
C516	1-123-356-00	ELECT	10MF	20%	25V
CF101	1-527-968-00	FILTER, CERAMIC			
CF102	1-527-968-00	FILTER, CERAMIC			
CF103	1-527-968-00	FILTER, CERAMIC			
CF301	1-527-937-00	FILTER, CERAMIC			
CF302	1-527-981-00	FILTER, CERAMIC			
CNJ201	1-562-068-00	SOCKET, CONNECTOR 13P			
CNJ501	1-562-479-11	SOCKET, CONNECTOR 10P			
CT301	1-141-171-00	CAP, TRIMMER 20P			
CT302	1-141-171-00	CAP, TRIMMER 20P			
CT303	1-141-171-00	CAP, TRIMMER 20P			
CT304	1-141-171-00	CAP, TRIMMER 20P			
D101	8-719-107-94	DIODE 1SS202-1			
D102	8-719-107-94	DIODE 1SS202-1			
D201	8-719-311-21	DIODE SEL1121R			
D202	8-719-107-94	DIODE 1SS202-1			
D203	8-719-107-94	DIODE 1SS202-1			
D301	8-719-902-79	DIODE KV1236Z			
D302	8-719-107-94	DIODE 1SS202-1			
D401	8-719-107-94	DIODE 1SS202-1			
D402	8-719-107-94	DIODE 1SS202-1			

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ELECTRICAL PARTS

Ref.No.	Part No.	Description
D403	8-719-107-94	DIODE 1SS202-1
D404	8-719-107-94	DIODE 1SS202-1
D405	8-719-107-94	DIODE 1SS202-1
D406	8-719-107-94	DIODE 1SS202-1
D408	8-719-107-94	DIODE 1SS202-1
D409	8-719-107-94	DIODE 1SS202-1
D411	8-719-107-94	DIODE 1SS202-1
D501 ⚠.	8-719-511-20	DIODE S1VB20
D502	8-719-901-62	DIODE HZ16-2L
D503	8-719-910-68	DIODE HZ6C2L
D504	8-719-107-94	DIODE 1SS202-1
D505	8-719-107-94	DIODE 1SS202-1
D506	8-719-107-94	DIODE 1SS202-1
FE101	A-4344-037-A	(AEP,UK)...FRONT END
FE101	A-4344-040-A	(G-AEP)....FRONT END
IC101	8-759-812-31	IC LA1231
IC201	8-759-833-90	IC LA3390
IC301	8-759-812-45	IC LA1245
IC401	8-759-202-10	IC TD6109P-S
IC402	8-759-202-09	IC TC9300F007B
IC403	8-759-800-63	IC LA5640
IFT101	1-404-419-00	COIL, DISCRIMINATOR
IFT301	1-404-535-11	COIL (WITH IFT)
L221	1-408-257-00	MICRO INDUCTOR 10MMH
L271	1-408-257-00	MICRO INDUCTOR 10MMH
L301	1-402-071-11	COIL (ANT)
L302	1-406-090-11	COIL (OSC)
L303	1-402-069-11	COIL (ANT)
L304	1-406-089-11	COIL (OSC)
L307	1-408-579-00	MICRO INDUCTOR 220UH
LCD101	1-806-643-00	DISPLAY PANEL, LIQUID CRYSTAL
PL501	1-518-557-11	LAMP, PILOT
Q101	8-729-671-13	TRANSISTOR 2SC710-13
Q102	8-729-671-13	TRANSISTOR 2SC710-13
0103	8-729-245-83	TRANSISTOR 2SC2458
Q401	8-729-245-83	TRANSISTOR 2SC2458
Q402	8-729-203-05	TRANSISTOR 2SK30A-GR3
Q403	8-729-201-84	TRANSISTOR 2SC3112-B
Q404	8-729-201-84	TRANSISTOR 2SC3112-B
Q405	8-729-203-05	TRANSISTOR 2SK30A-GR3
Q406	8-729-201-84	TRANSISTOR 2SC3112-B
Q407	8-729-201-84	TRANSISTOR 2SC3112-B
Q408	8-729-117-54	TRANSISTOR 2SA1175
Q501	8-729-288-02	TRANSISTOR 2SD880

ELECTRICAL PARTS

Ref.No.	Part No.	Description				
Q502	8-729-224-63	TRANSISTOR 2SK246-BL				
Q503	8-729-245-83	TRANSISTOR 2SC2458				
Q504	8-729-288-02	TRANSISTOR 2SD880				
Q505	8-729-117-54	TRANSISTOR 2SA1175				
R101	1-247-119-00	CARBON	330	5%	1/4W	
R102	1-247-119-00	CARBON	330	5%	1/4W	
R103	1-246-505-00	CARBON	22K	5%	1/4W	
R104	1-246-505-00	CARBON	22K	5%	1/4W	
R105	1-247-135-00	CARBON	1.5K	5%	1/4W	
R106	1-247-119-00	CARBON	330	5%	1/4W	
R107	1-246-485-00	CARBON	3.3K	5%	1/4W	
R109	1-247-135-00	CARBON	1.5K	5%	1/4W	
R108	1-246-505-00	CARBON	22K	5%	1/4W	
R110	1-247-119-00	CARBON	330	5%	1/4W	
R111 ⚠.	1-247-115-00	CARBON	220	5%	1/4W	F
R112 ⚠.	1-247-111-00	CARBON	150	5%	1/4W	F
R113	1-247-119-00	CARBON	330	5%	1/4W	
R114	1-247-173-00	CARBON	56K	5%	1/4W	
R115	1-247-155-00	CARBON	10K	5%	1/4W	
R116	1-247-179-00	CARBON	100K	5%	1/4W	
R117 ⚠.	1-247-109-00	CARBON	120	5%	1/4W	F
R118	1-246-499-00	CARBON	12K	5%	1/4W	
R120	1-246-505-00	CARBON	22K	5%	1/4W	
R121	1-247-179-00	CARBON	100K	5%	1/4W	
R122	1-247-167-00	CARBON	33K	5%	1/4W	
R123	1-247-155-00	CARBON	10K	5%	1/4W	
R201 ⚠.	1-247-109-00	CARBON	120	5%	1/4W	F
R204	1-247-171-00	CARBON	47K	5%	1/4W	
R205	1-247-135-00	CARBON	1.5K	5%	1/4W	
R206	1-247-131-00	CARBON	1K	5%	1/4W	
R207	1-214-757-00	METAL	15K	1%	1/4W	
R208	1-247-171-00	CARBON	47K	5%	1/4W	
R209	1-246-529-00	CARBON	220K	5%	1/4W	
R221	1-247-175-00	CARBON	68K	5%	1/4W	
R222	1-247-083-00	CARBON	10	5%	1/4W	
R223	1-247-139-00	CARBON	2.2K	5%	1/4W	
R224	1-247-139-00	CARBON	2.2K	5%	1/4W	
R271	1-247-175-00	CARBON	68K	5%	1/4W	
R272	1-247-083-00	CARBON	10	5%	1/4W	
R273	1-247-139-00	CARBON	2.2K	5%	1/4W	
R274	1-247-139-00	CARBON	2.2K	5%	1/4W	
R275	1-246-499-00	(AEP,UK)...CARBON	12K	5%	1/4W	
R275	1-246-507-00	(G-AEP)....CARBON	27K	5%	1/4W	
R301	1-247-155-00	CARBON	10K	5%	1/4W	
R302	1-247-179-00	CARBON	100K	5%	1/4W	
R303	1-247-155-00	CARBON	10K	5%	1/4W	

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The components identified by shading and mark ⚠ are critical for safety.
Replace only with part number specified.

ELECTRICAL PARTS

Ref.No.	Part No.	Description				
R304	1-247-139-00	CARBON	2.2K	5%	1/4W	
R305 ⚠	1-247-115-00	CARBON	220	5%	1/4W	F
R306	1-247-123-00	CARBON	470	5%	1/4W	
R307	1-246-485-00	CARBON	3.3K	5%	1/4W	
R308	1-247-171-00	CARBON	47K	5%	1/4W	
R309 ⚠	1-247-109-00	CARBON	120	5%	1/4W	F
R310	1-247-107-00	CARBON	100	5%	1/4W	
R311	1-247-155-00	CARBON	10K	5%	1/4W	
R312	1-247-155-00	CARBON	10K	5%	1/4W	
R313	1-246-442-00	CARBON	51	5%	1/4W	
R314	1-247-155-00	CARBON	10K	5%	1/4W	
R315	1-247-155-00	CARBON	10K	5%	1/4W	
R316	1-247-147-00	CARBON	4.7K	5%	1/4W	
R317	1-246-545-00	CARBON	1M	5%	1/4W	
R318	1-247-139-00	CARBON	2.2K	5%	1/4W	
R319	1-247-179-00	CARBON	100K	5%	1/4W	
R401	1-246-519-00	CARBON	82K	5%	1/4W	
R402	1-247-155-00	CARBON	10K	5%	1/4W	
R403	1-247-171-00	CARBON	47K	5%	1/4W	
R404	1-246-545-00	CARBON	1M	5%	1/4W	
R405	1-246-545-00	CARBON	1M	5%	1/4W	
R406	1-246-545-00	CARBON	1M	5%	1/4W	
R407	1-246-545-00	CARBON	1M	5%	1/4W	
R408	1-247-151-00	CARBON	6.8K	5%	1/4W	
R409	1-247-125-00	CARBON	560	5%	1/4W	
R410	1-246-512-00	CARBON	43K	5%	1/4W	
R411	1-246-482-00	CARBON	2.4K	5%	1/4W	
R412	1-247-147-00	CARBON	4.7K	5%	1/4W	
R414 ⚠	1-247-109-00	CARBON	120	5%	1/4W	F
R415	1-247-167-00	CARBON	33K	5%	1/4W	
R416	1-247-125-00	CARBON	560	5%	1/4W	
R417	1-214-716-00	METAL	300	1%	1/4W	
R418	1-246-499-00	CARBON	12K	5%	1/4W	
R419	1-246-482-00	CARBON	2.4K	5%	1/4W	
R420	1-247-147-00	CARBON	4.7K	5%	1/4W	
R421	1-246-514-00	CARBON	51K	5%	1/4W	
R422	1-246-514-00	CARBON	51K	5%	1/4W	
R423	1-247-111-00	CARBON	150	5%	1/4W	
R424	1-214-117-00	METAL	240	1%	1/4W	
R425	1-247-155-00	CARBON	10K	5%	1/4W	
R426	1-247-155-00	CARBON	10K	5%	1/4W	
R427	1-247-147-00	CARBON	4.7K	5%	1/4W	
R428	1-247-167-00	CARBON	33K	5%	1/4W	
R501	1-247-155-00	CARBON	10K	5%	1/4W	
R503 ⚠	1-213-125-00	METAL OXIDE	33	5%	1W	F

ELECTRICAL PARTS

Ref.No.	Part No.	Description
R515	1-247-155-00	CARBON 10K 5% 1/4W
R516	1-247-135-00	CARBON 1.5K 5% 1/4W
R517	1-246-527-00	CARBON 180K 5% 1/4W
RT101	1-226-236-00	RES, ADJ, CARBON 10K
RT201	1-228-505-00	RES, ADJ, METAL GLAZE 10K
S401	1-552-174-00	SWITCH, PUSH (1)
S402	1-552-174-00	SWITCH, PUSH (2)
S403	1-552-174-00	SWITCH, PUSH (3)
S404	1-552-174-00	SWITCH, PUSH (4)
S405	1-552-174-00	SWITCH, PUSH (5)
S406	1-552-174-00	SWITCH, PUSH (MEMORY)
S407	1-552-174-00	SWITCH, PUSH (-)
S408	1-552-174-00	SWITCH, PUSH (+)
S501	1-554-266-00	SWITCH, ROTARY SLIDE (BAND)
T101	1-235-126-00	(G-AEP)....ENCAPSULATED COMPONENT
X401	1-527-995-00	VIBRATOR, CRYSTAL

NOTE:
- The mechanical parts with no reference number in the exploded views are not supplied.
- Items marked " ● " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- Due to standardization, parts with part numbers (Δ-ΔΔΔ-ΔΔΔ-XX or Δ-ΔΔΔΔ-ΔΔΔ-X) may be different from those used in the set.
- If there are two or more same circuitsin a set such as a stereophonic machine, only typical circuit parts may be indicated and capacitors and resistors in other same circuits may be omitted.

CAPACITORS:
MF:μF, PF:μμF.

RESISTORS
- All resistors are in ohms.
- F : nonflammable

COILS
- MMH : mH, UH : μH

SEMICONDUCTORS
In each case, U : μ, for example:
UA···: μA···, UPA···: μPA···, UPC···: μPC,
UPD···: μPD···

The components identified by shading and mark ⚠ are critical for safety.
Replace only with part number specified.

STEREO CASSETTE DECK

(TC-V10)

SONY
LBT-V10

Tape Transport Mechanism Type	TCM-130V13

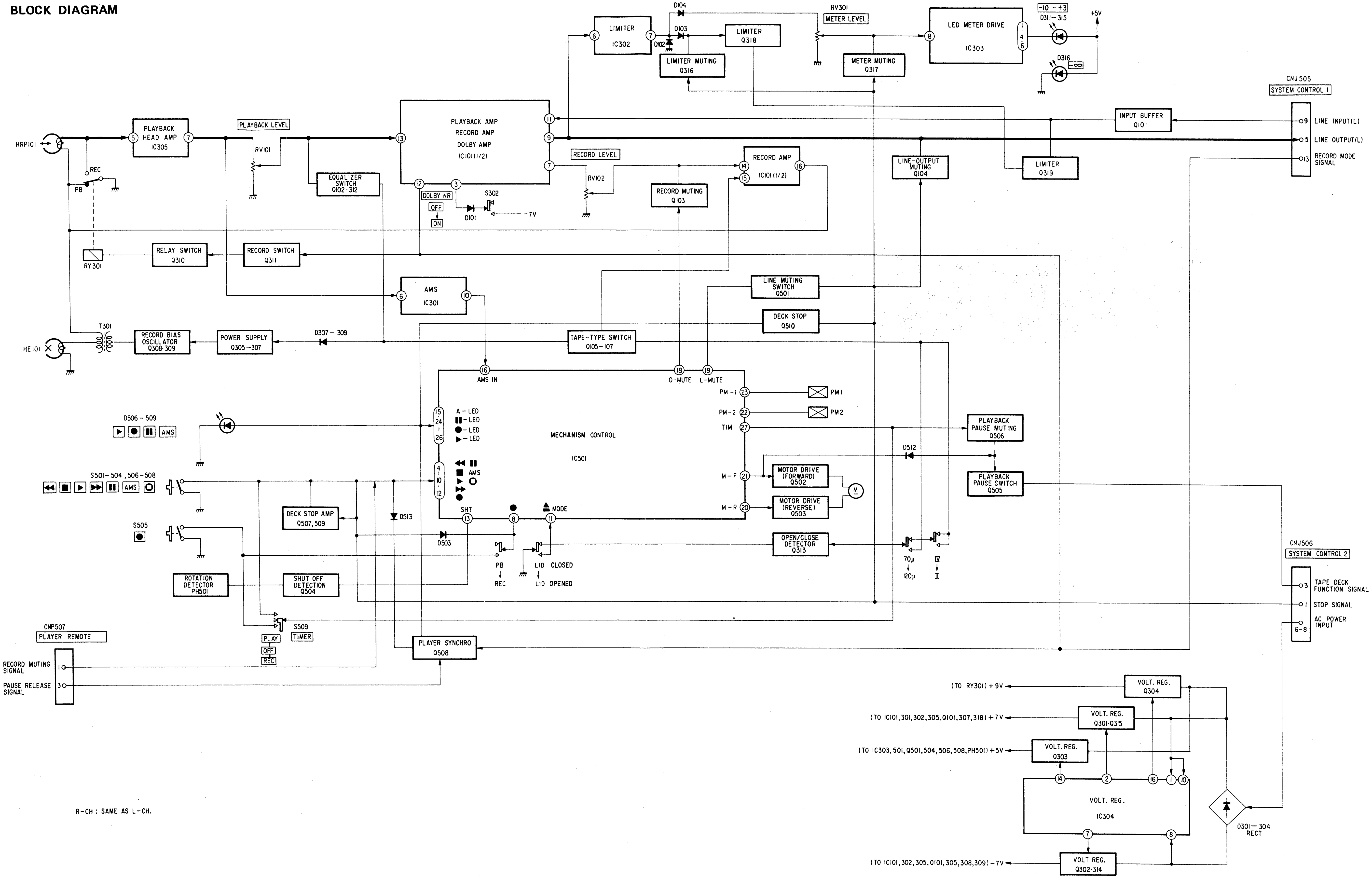
SECTION 1

OUTLINE

1-1. SERVICEING NOTE

This unit takes 10 V AC power source from the power amplifier unit TA-V10 together with the system-control signals using the connection cable, thus power-transformer less. When performing checks and repairs on the TC-V10, be sure to make a system setup. Otherwise, checkings and repairs may become in unsatisfactory.

1-2. BLOCK DIAGRAM


HRP101
PLAYBACK HEAD AMP IC305
REC
PB
PLAYBACK LEVEL
RV101
EQUALIZER SWITCH Q102·312
PLAYBACK AMP
RECORD AMP
DOLBY AMP
IC101 (1/2)
DOLBY NR
OFF
ON
D101
S302
-7V
RECORD LEVEL
RV102
RECORD AMP IC101 (1/2)
RECORD MUTING Q103
D104
D103
D102
LIMITER IC302
LIMITER Q318
LIMITER MUTING Q316
RV301
METER LEVEL
METER MUTING Q317
LED METER DRIVE IC303
-10 - +3
D311 - 315
+5V
D316
-∞
CNJ505
SYSTEM CONTROL 1
INPUT BUFFER Q101
LINE INPUT(L)
LINE OUTPUT(L)
RECORD MODE SIGNAL
LINE-OUTPUT MUTING Q104
LIMITER Q319
RY301
RELAY SWITCH Q310
RECORD SWITCH Q311
AMS IC301
LINE MUTING SWITCH Q501
DECK STOP Q510
HE101
T301
RECORD BIAS OSCILLATOR Q308·309
POWER SUPPLY Q305-307
D307 - 309
TAPE-TYPE SWITCH Q105-107
AMS IN
O-MUTE
L-MUTE
PM-1
PM-2
PM1
PM2
TIM
MECHANISM CONTROL
IC501
A-LED
■-LED
●-LED
▶-LED
◀◀ ■■
■ AMS
▶ ○
▶▶
●
M-F
M-R
MOTOR DRIVE (FORWARD) Q502
MOTOR DRIVE (REVERSE) Q503
M
SHT
▲ MODE
PLAYBACK PAUSE MUTING Q506
PLAYBACK PAUSE SWITCH Q505
D512
D506 - 509
▶ ● ■■ AMS
S501-504, 506-508
◀◀ ■ ▶ ▶▶ ■■ AMS ○
DECK STOP AMP Q507,509
D513
S505
●
D503
PB
REC
LID CLOSED
LID OPENED
OPEN/CLOSE DETECTOR Q313
70μ
120μ
IV
II
CNJ506
SYSTEM CONTROL 2
TAPE DECK FUNCTION SIGNAL
STOP SIGNAL
AC POWER INPUT
6-8
ROTATION DETECTOR PH501
SHUT OFF DETECTION Q504
S509
PLAY
OFF
REC
TIMER
CNP507
PLAYER REMOTE
RECORD MUTING SIGNAL
PAUSE RELEASE SIGNAL
PLAYER SYNCHRO Q508
(TO RY301) +9V
VOLT. REG. Q304
(TO IC101, 301, 302, 305, Q101, 307, 318) +7V
VOLT. REG. Q301·Q315
(TO IC303, 501, Q501, 504, 506, 508, PH501) +5V
VOLT. REG. Q303
VOLT. REG. IC304
D301 - 304 RECT
(TO IC101, 302, 305, Q101, 305, 308, 309) -7V
VOLT. REG. Q302·314
R-CH : SAME AS L-CH.

SECTION 2
DISASSEMBLY

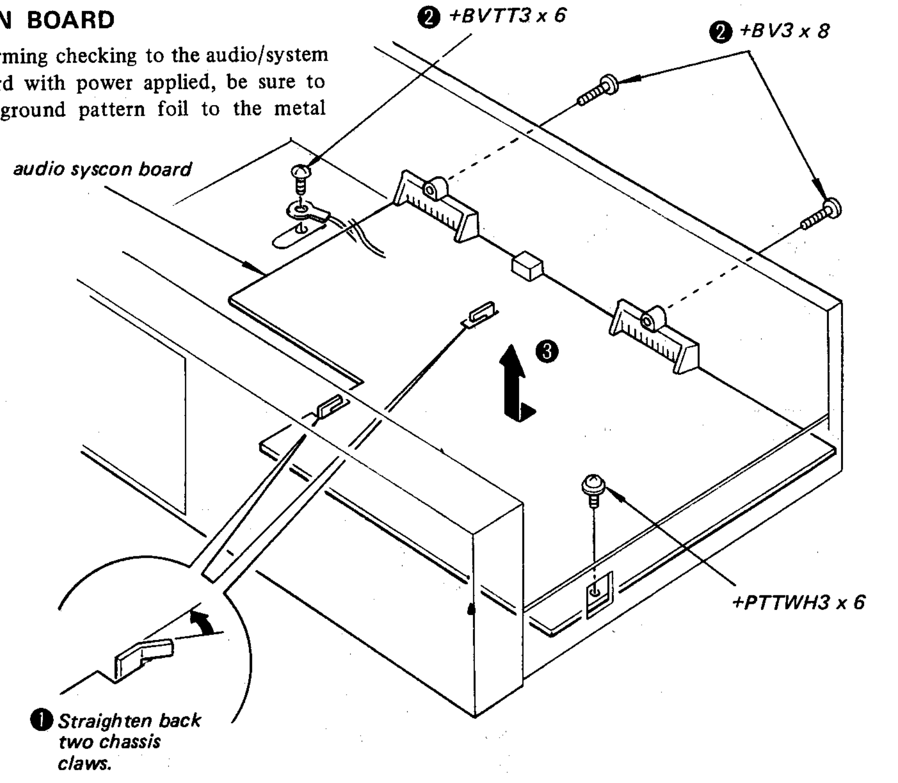
Note: Follow the disassembly procedure in the numerical order given.

CASE REMOVAL

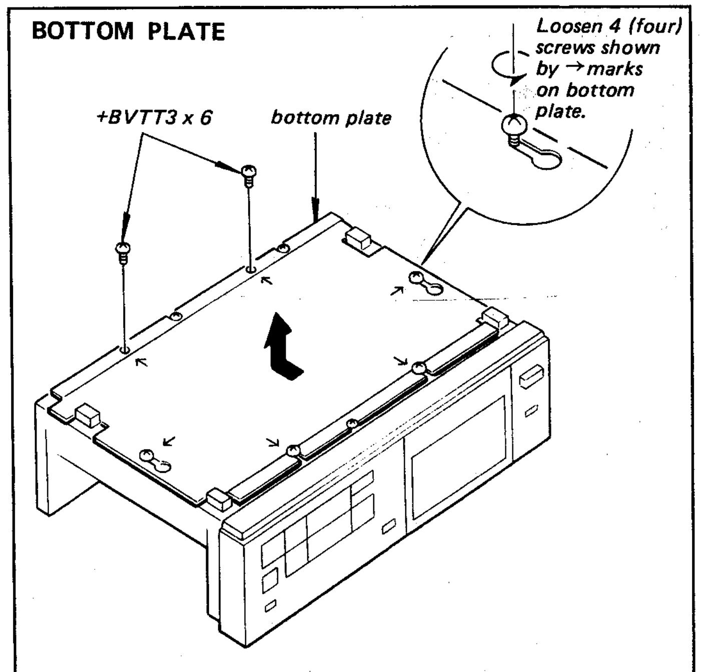
Remove case by taking out four securing case.

AUDIO-SYSCON BOARD

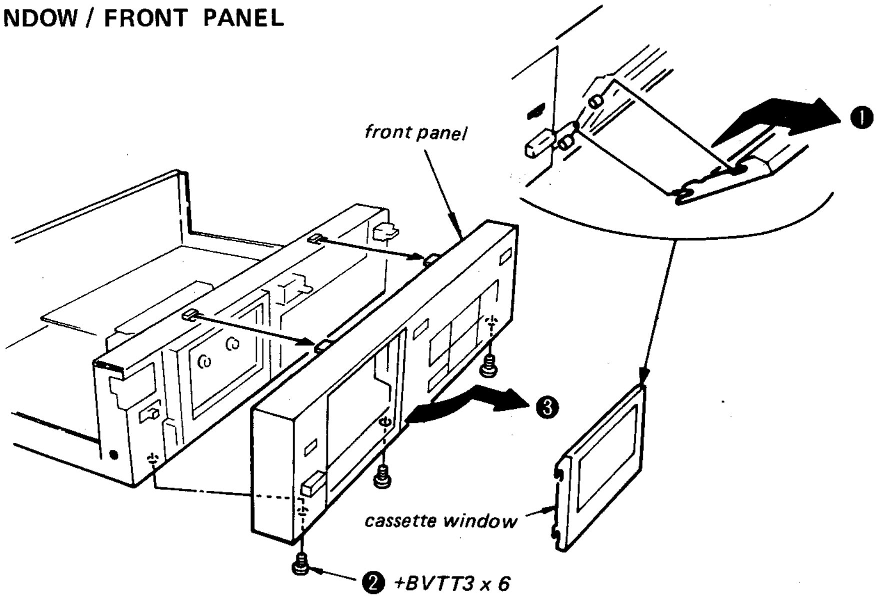
Note: When performing checking to the audio/system control board with power applied, be sure to connect its ground pattern foil to the metal chassis.


② +BVTT3 x 6
② +BV3 x 8
audio syscon board
③
+PTTWH3 x 6
① Straighten back two chassis claws.

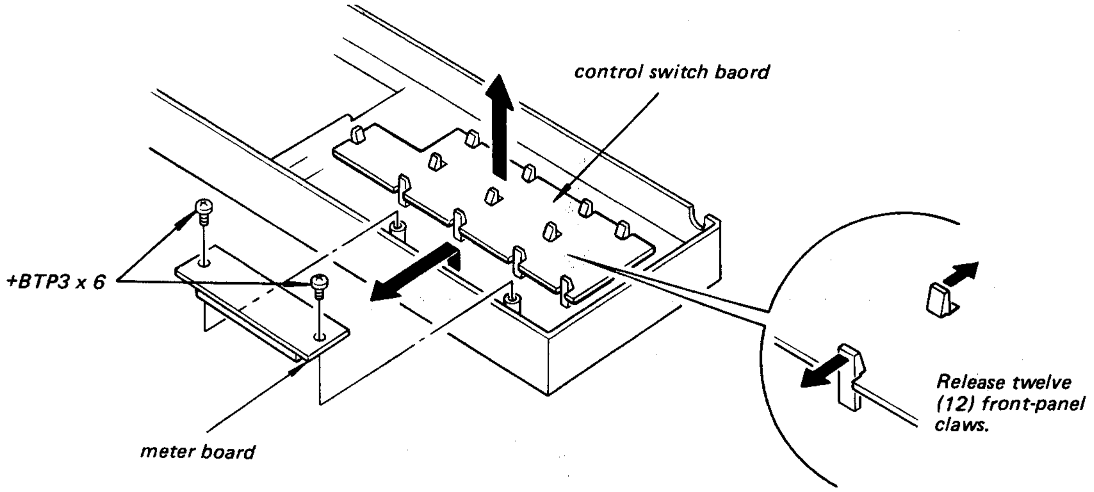
BOTTOM PLATE


Loosen 4 (four) screws shown by → marks on bottom plate.
+BVTT3 x 6
bottom plate

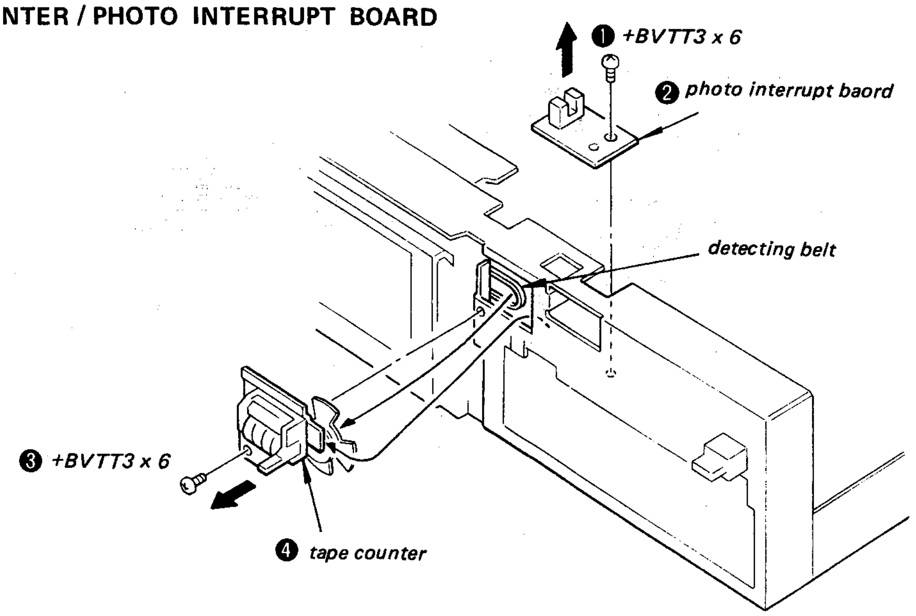
CASSETTE WINDOW / FRONT PANEL


front panel
①
③
cassette window
② +BVTT3 x 6

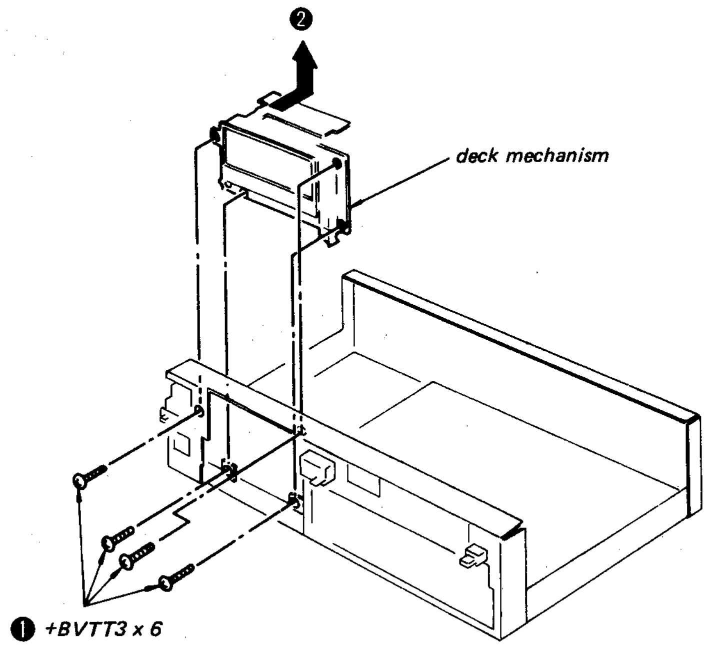
METER BOARD / CONTROL SWITCH BOARD


control switch baord
+BTP3 x 6
Release twelve (12) front-panel claws.
meter board

TAPE COUNTER / PHOTO INTERRUPT BOARD

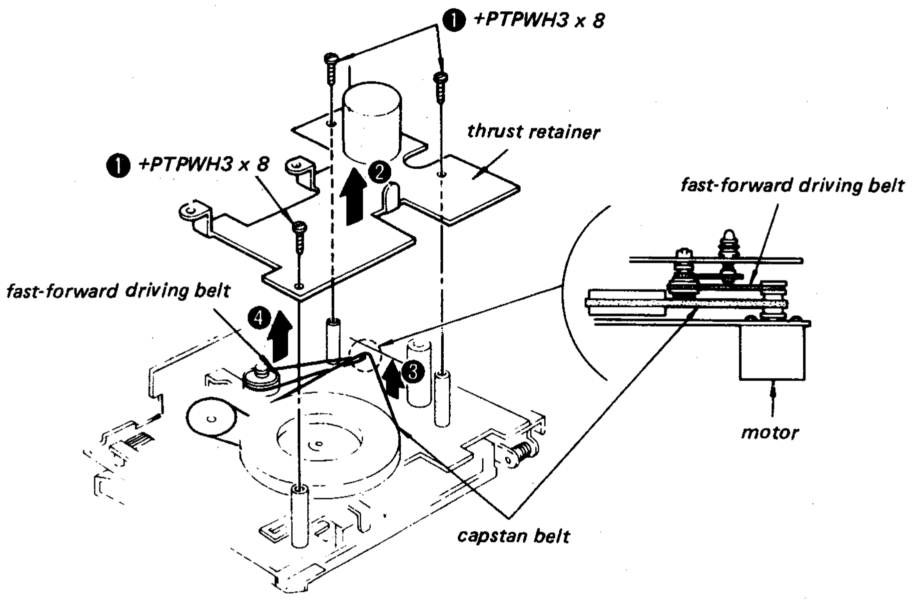

① +BVTT3 x 6
② photo interrupt baord
detecting belt
③ +BVTT3 x 6
④ tape counter

DECK MECHANISM ASS'Y


❷
deck mechanism
❶ +BVTT3 x 6

THRUST RETAINER / CAPSTAN BELT / FAST-FORWARD DRIVING BELT

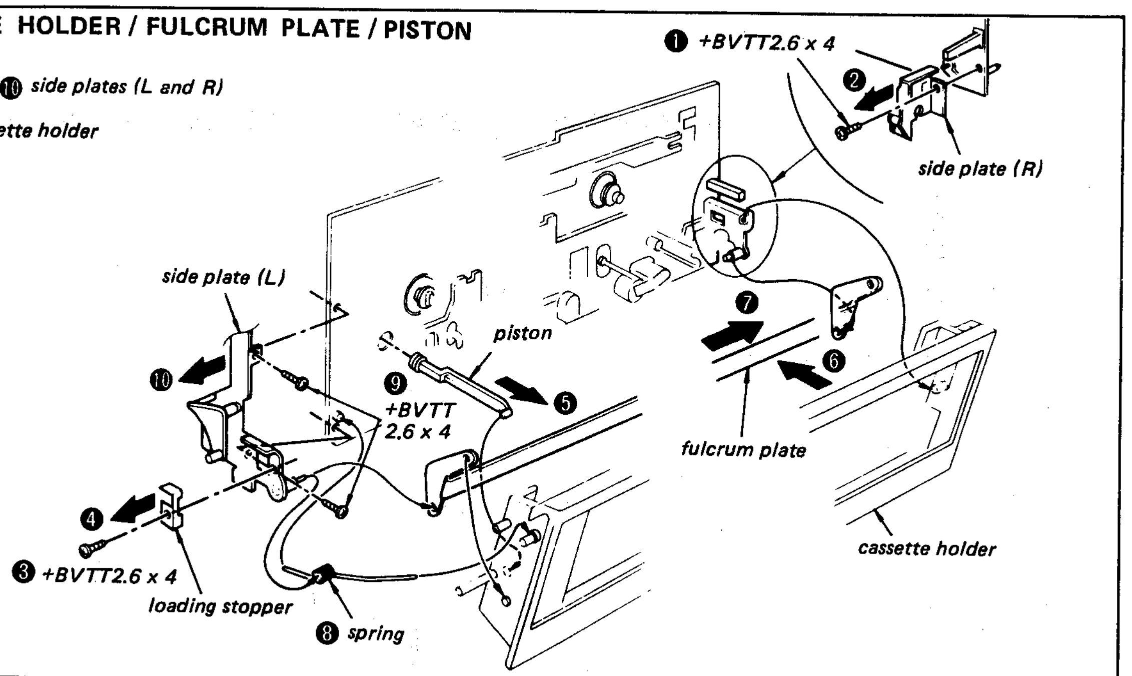
❶ ❷ *thrust retainer*


❶ +PTPWH3 x 8
thrust retainer
❶ +PTPWH3 x 8
❷
fast-forward driving belt
fast-forward driving belt
❹
❸
motor
capstan belt

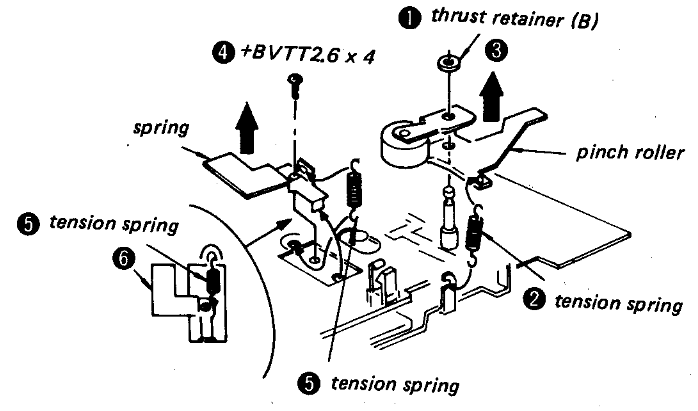
CASSETTE HOLDER / FULCRUM PLATE / PISTON

❶-❹ ❾ ❿ *side plates (L and R)*

❻ ❼ *cassette holder*

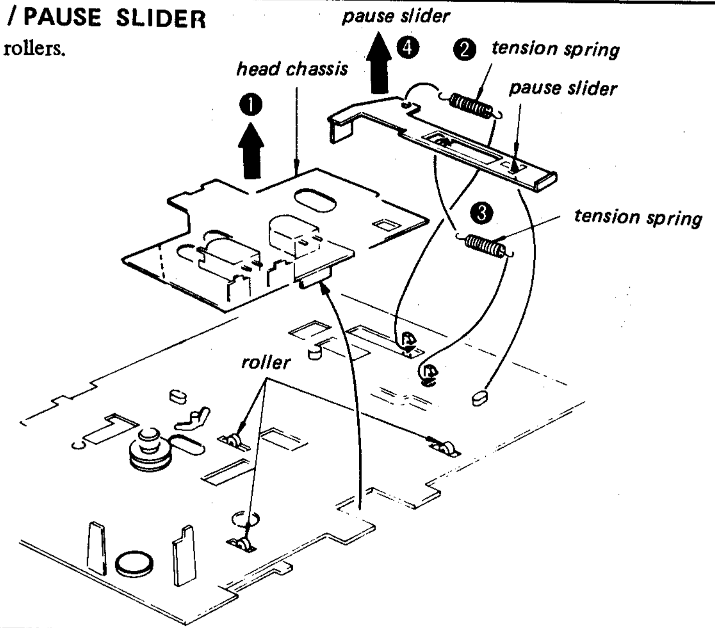

❶ +BVTT2.6 x 4
❷
side plate (R)
side plate (L)
piston
❿
❾
+BVTT
2.6 x 4
❺
❼
❻
fulcrum plate
❹
❸ +BVTT2.6 x 4
loading stopper
❽ spring
cassette holder

PINCH ROLLER / SPRINGS


❶ thrust retainer (B)
❹ +BVTT2.6 x 4
❸
spring
pinch roller
❺ tension spring
❻
❷ tension spring
❺ tension spring

HEAD CHASSIS / PAUSE SLIDER

Note: Do not loose rollers.


pause slider
❹
❷ tension spring
head chassis
pause slider
❶
❸
tension spring
roller

SECTION 3

ADJUSTMENTS

3-1. MECHANICAL ADJUSTMENTS

PRECAUTION

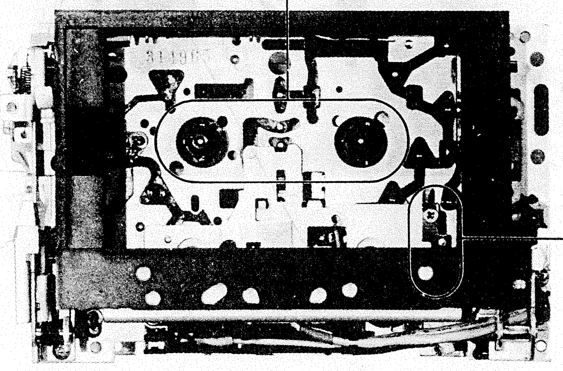
1. Clean the following parts with a denatured-alcohol-moistened swab:

record/playback head	pinch roller
erase head	rubber belts
capstan	idlers

2. Demagnetize the record/playback head with a head demagnetizer.
3. Do not use a magnetized screwdriver for the adjustments.
4. After the adjustments, apply suitable locking compound to the parts adjusted.
5. The adjustments should be performed with the rated power supply voltage unless otherwise noted.

Torque Measurement

Torque	Torque meter	Meter reading
Forward torque	CQ102C	30–63 g·cm (0.42–0.88 oz·inch)
Back tension torque	CQ102C	2.5–6.5 g·cm (0.03–0.09 oz·inch)
Fast-forward/rewind torque	CQ201B	80–165 g·cm (1.1–2.29 oz·inch)



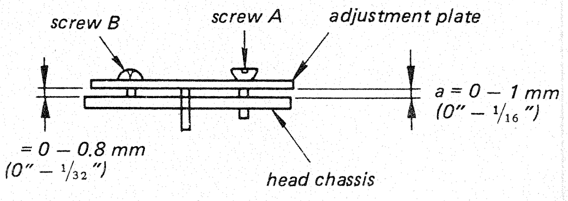


Fig. 1

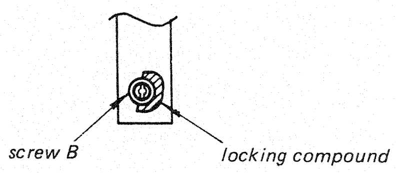
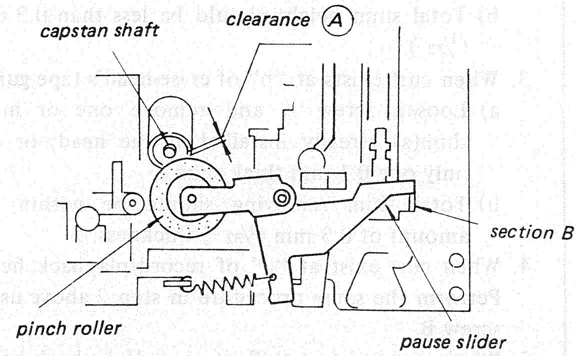


Fig. 2.

Clearance Between Pinch Roller And Capstan Shaft Adjustment

1. **Mode:** forward-pause

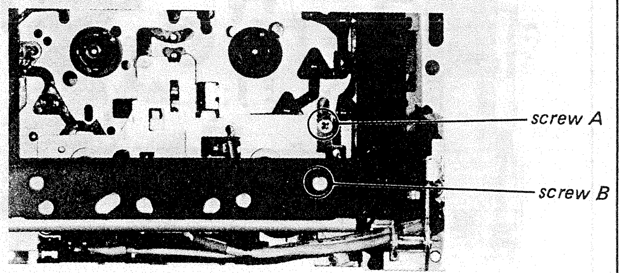
   Adjust by bending section B of pause slider so that the clearance Ⓐ between pinch roller and capstan shaft becomes 0.4 – 0.8 mm.



Head Moving Stroke Adjustment
– Playback and AMS Modes –

Procedure:

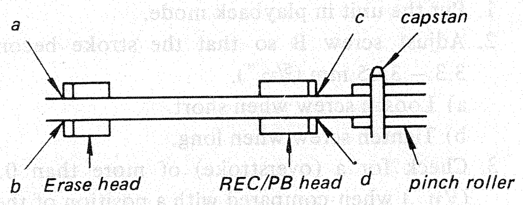
1. Put the unit in playback mode.
2. Adjust screw B so that the stroke becomes in 3.3 – 3.45 mm (5/32").
   a) Loosen screw when short.
   b) Tighten screw when long.
3. Check for a (overstroke) of more than 0.3 mm (1/31") when compared with a position of the head in normal playback mode.
4. Clearance between head chassis and adjustment plate should be 0 – 0.8 mm (0" – 1/32") as shown in Fig. 1-b.
5. Put the unit in AMS mode.
6. Adjust screw A so that the stroke becomes in 1.9 mm – 2.1 mm (3/32").
   a) Loosen screw B when long.
   b) Tighten screw A when short.
7. Clearance between head chassis and adjustment plate should be 0 – 1 mm (0" – 1/16") as shown in Fig. 1-a.
8. Lock the adjustment screws after the adjustment. Be sure to apply locking compound on only half (180°) of the screw head of screw B as shown in Fig. 2.



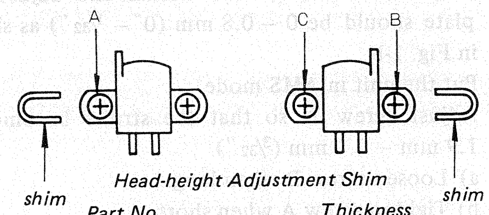
Tape Path Adjustment

Procedure:

1. Mode: playback Mirror tape cassette CQ-009C
2. When curl exists at "a" of erase-head's tape guide.
   - a) Loosen screw A and put appropriate head-height adjustment shim(s) to eliminate curl.
   - b) Total shim height should be less than 0.3 mm (1/32").
3. When curl exists at "b" of erase-head's tape guide.
   - a) Loosen screw A and remove one or more shim(s) already installed at the head, or use only one 0.1 mm thick shim.
   - b) Total shim removing should be within the amount of 0.3 mm (1/32") thickness.
4. When curl exist at "c" of record/playback head. Perform the same procedure in step 2 above using screw B.
5. When curl exist at "d" of record/playback head. Perform the same procedure in step 3 above using screw B.
6. After the adjustment, lock the screws with locking compound.

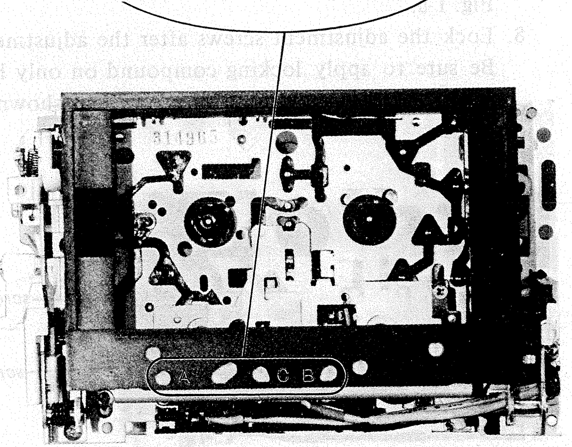


Seen with a mirror tape cassette.



Head-height Adjustment Shim

Part No.	Thickness
3-513-237-01	0.1 mm
3-513-237-11	0.2 mm

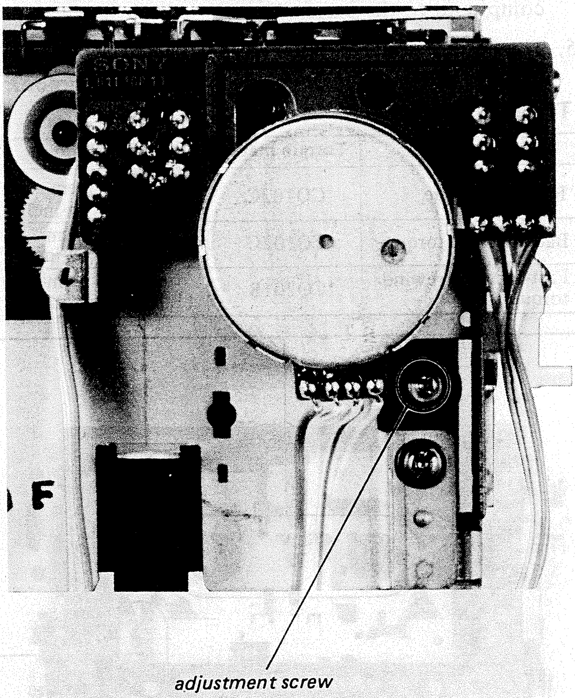


Soft Eject Speed Adjustment

Note: Place the unit on its side when performing this adjustment.

Procedure:

1. Put any tape cassette whose weight is equivalent to a "CHF 90" in the unit.
2. Be sure to install the cassette lid.
3. Adjust position of screw by repeating pressing ejection button and closing cassette lid so that the lid-opening time becomes in 0.4 to 1.0 second.
   - a) When fast: Tighten screw.
   - b) When slow: Loosen screw.



3-2. ELECTRICAL ADJUSTMENTS

Note: The adjustment should be performed in the order given in this service manual.
The adjustments should be performed for both L-CH and R-CH.

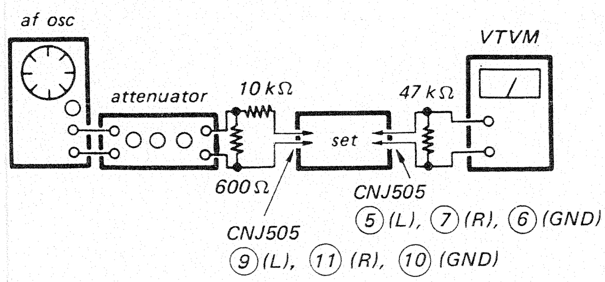
- Tape switches are automatically switched according to the tape used.

Tape	TAPE TYPE indicator
CS-15	TYPE I
CS-26	TYPE II
CS-40	TYPE IV

- Switches and controls should be set as follows unless otherwise specified.

DOLBY NR switch:	OFF
TIMER switch:	OFF

– Record Mode –

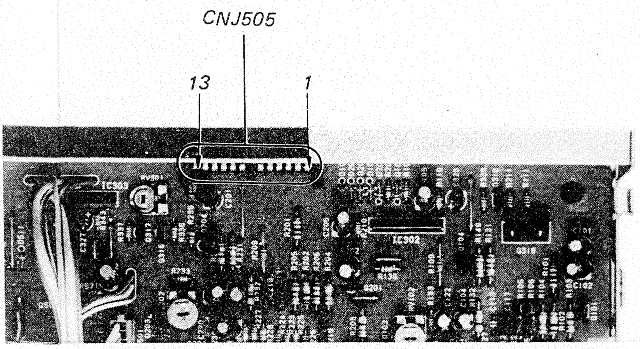

af osc
attenuator
10 kΩ
600 Ω
set
47 kΩ
VTVM
CNJ505
⑤(L), ⑦(R), ⑥(GND)
CNJ505
⑨(L), ⑪(R), ⑩(GND)

Standard Input Level

	CNJ505 9(L), 11(R)
source impedance	10 kΩ
input level	0.25 V (−10 dB)

Standard Output Level

	CNJ505 5(L), 7(R)
load impedance	47 kΩ
output level	0.44 V (−5 dB)

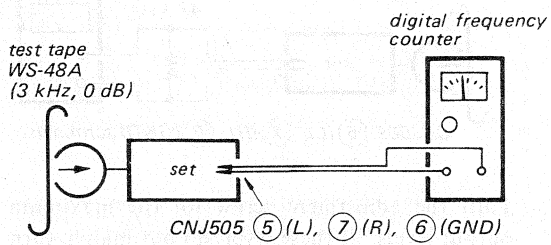


Tape Speed Adjustment

Setting:
DOLBY NR: OFF

Procedure:

1. Mode: playback


test tape
WS-48A
(3 kHz, 0 dB)
set
digital frequency counter
CNJ505 ⑤(L), ⑦(R), ⑥(GND)

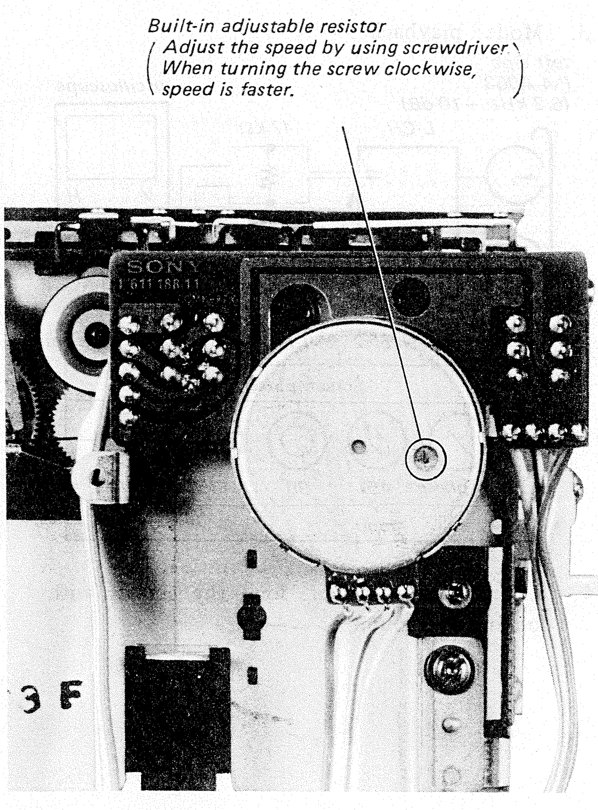
Play back the tape in forward mode, and adjust the adjustable resistor built in motor.

Specification:

Speed checker	Frequency counter
± 2.5%	2,925 – 3,075 Hz

Level difference between tape start and tape end: 1% (30 Hz)

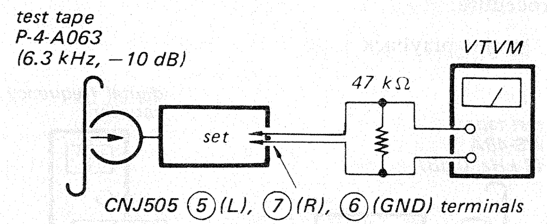
Adjustment Location: Motor


Built-in adjustable resistor
(Adjust the speed by using screwdriver. When turning the screw clockwise, speed is faster.)
SONY

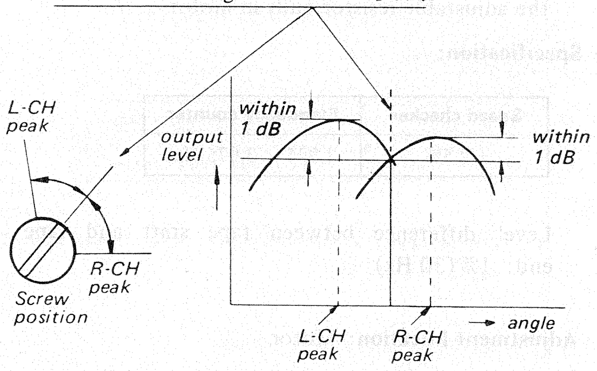
Record/playback Head Azimuth Adjustment

Procedure:

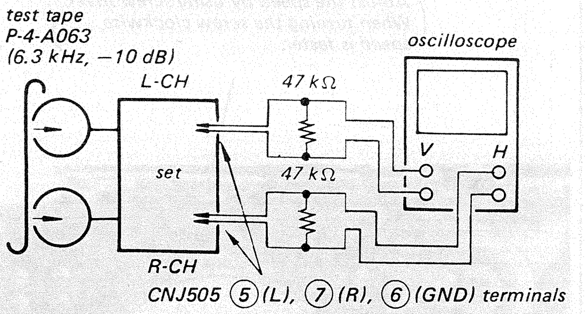
1. Mode: playback

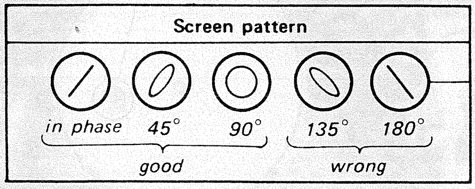

test tape
P-4-A063
(6.3 kHz, −10 dB)
VTVM
47 kΩ
set
CNJ505 ⑤(L), ⑦(R), ⑥(GND) terminals

2. Turn the adjustment screw for the maximum output levels. If these levels do not match, turn the adjustment screw until both of output levels match together within 1 dB.


L-CH
peak
output
level
within
1 dB
within
1 dB
R-CH
peak
Screw
position
angle
L-CH
peak
R-CH
peak

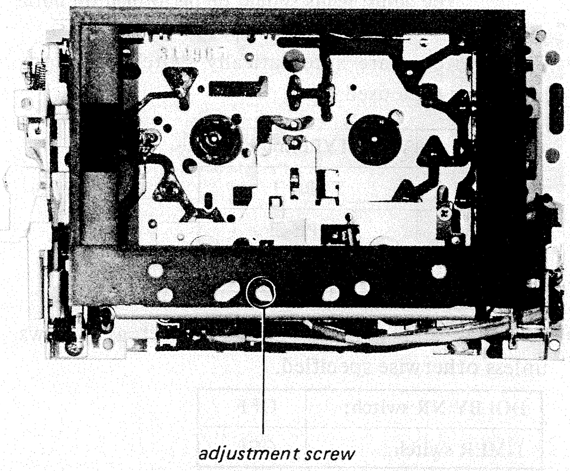
3. Mode: playback


test tape
P-4-A063
(6.3 kHz, −10 dB)
oscilloscope
L-CH
47 kΩ
set
47 kΩ
V
H
R-CH
CNJ505 ⑤(L), ⑦(R), ⑥(GND) terminals


Screen pattern
in phase
45°
90°
135°
180°
good
wrong

4. After the adjustment, lock the screws with locking compound.

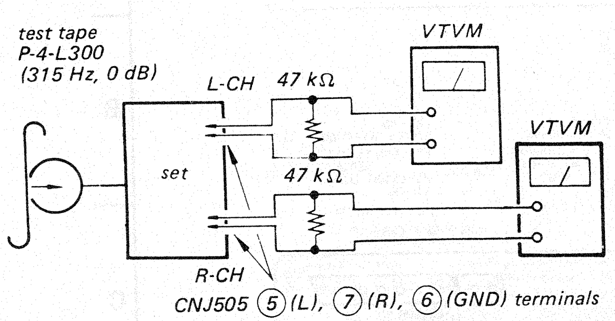
Adjustment Location:


adjustment screw

Playback Level Adjustment

Procedure:

Mode: playback


test tape
P-4-L300
(315 Hz, 0 dB)
VTVM
L-CH
47 kΩ
VTVM
set
47 kΩ
R-CH
CNJ505 ⑤(L), ⑦(R), ⑥(GND) terminals

Adjust RV101 (L-CH) and RV201 (R-CH) so that the specification is met.

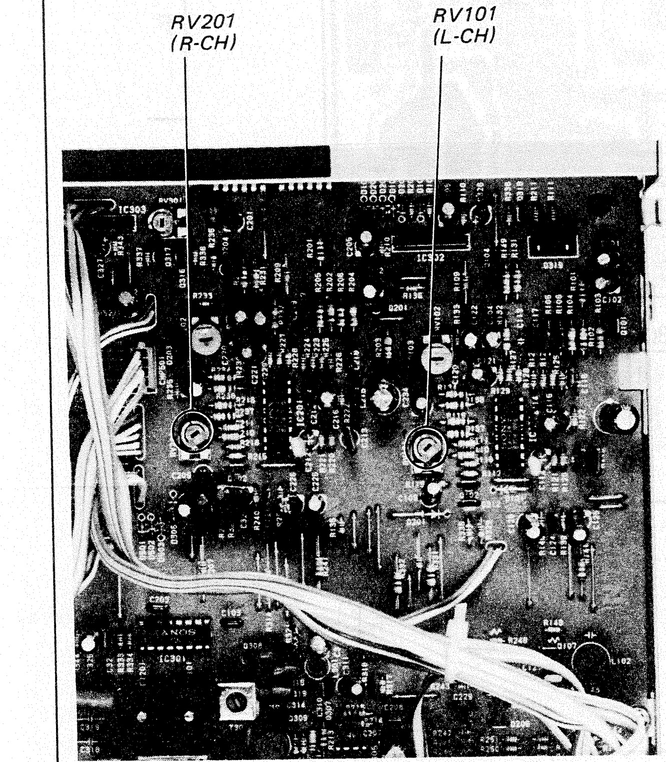
Specification:

LINE OUT level: 0.41 to 0.46 V
(−5.5 to −4.5 dB)

Level difference between channels:
less than 0.5 dB

Check that the CNJ505 ⑤ (L), ⑦ (R) terminal level does not change in playback mode while changing the mode from playback to stop several times.

Adjustment Location: audio syscon board


RV201
(R-CH)
RV101
(L-CH)

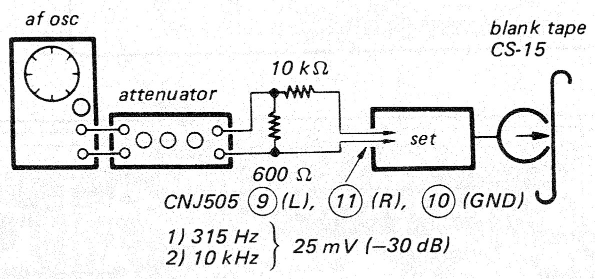
Record Bias Adjustment

Setting:

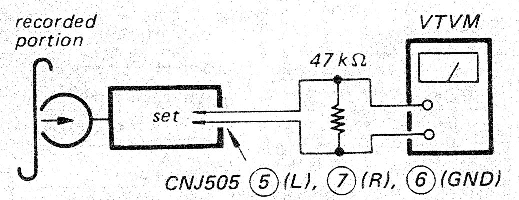
(See page TC-11.)

Procedure:

1. Mode: record

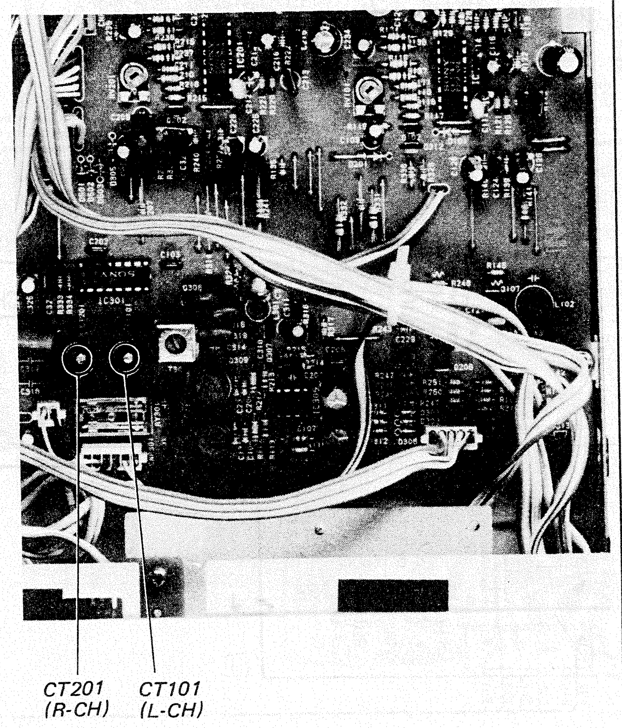

af osc
blank tape
CS-15
10 kΩ
attenuator
set
600 Ω
CNJ505 ⑨(L), ⑪ (R), ⑩ (GND)
1) 315 Hz
2) 10 kHz
25 mV (−30 dB)

2. Mode: playback


recorded
portion
VTVM
47 kΩ
set
CNJ505 ⑤(L), ⑦(R), ⑥(GND)

Confirm that the 10 kHz playback output is 0 dB relative to the 315 Hz output. If necessary, adjust CT101 (L-CH), CT201 (R-CH) and repeat the steps given above.

Adjustment Location: audio syscon board


CT201
(R-CH)
CT101
(L-CH)

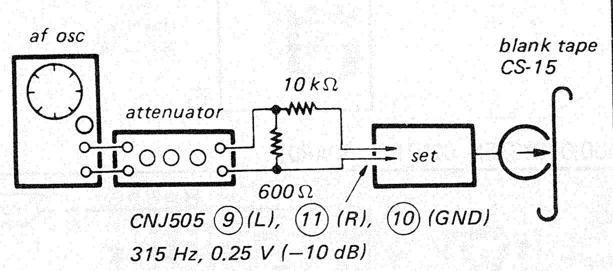
Record Level Adjustment

Setting:

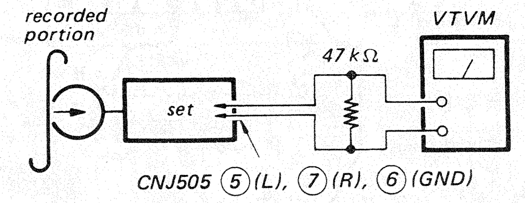
(See page TC-11.)

Procedure:

1. Mode: record


af osc
blank tape
CS-15
10 kΩ
attenuator
set
600 Ω
CNJ505 ⑨(L), ⑪ (R), ⑩ (GND)
315 Hz, 0.25 V (−10 dB)

2. Mode: playback

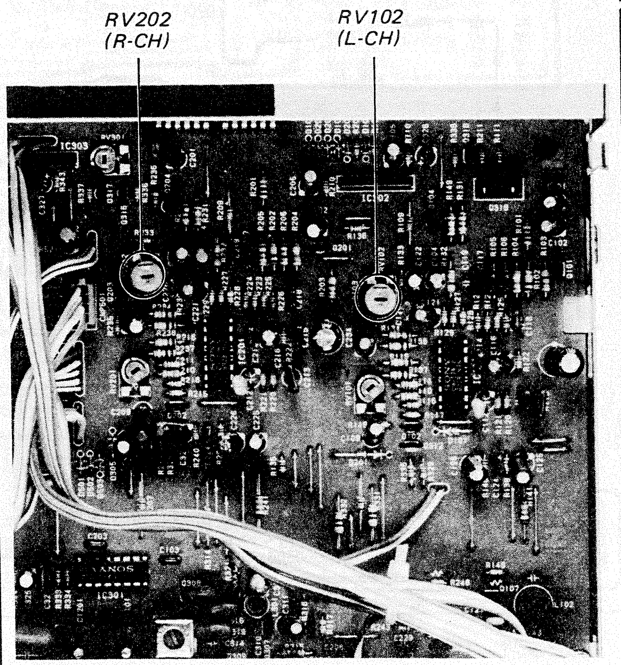

recorded
portion
VTVM
47 kΩ
set
CNJ505 ⑤(L), ⑦(R), ⑥(GND)

3. Play back the signal recorded in step 1.
   Confirm that the signal level is within the specification below. If necessary, adjust RV102 (L-CH), RV202 (R-CH) and repeat the steps 1−3.

Specification:

LINE OUT level: 0.42 − 0.46 V
(−5.5 to −4.5 dB)

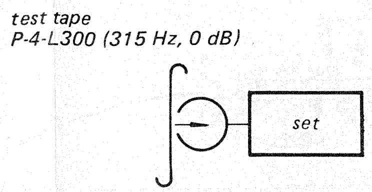
Adjustment Location: audio syscon board


RV202
(R-CH)
RV102
(L-CH)

Level Meter Calibration

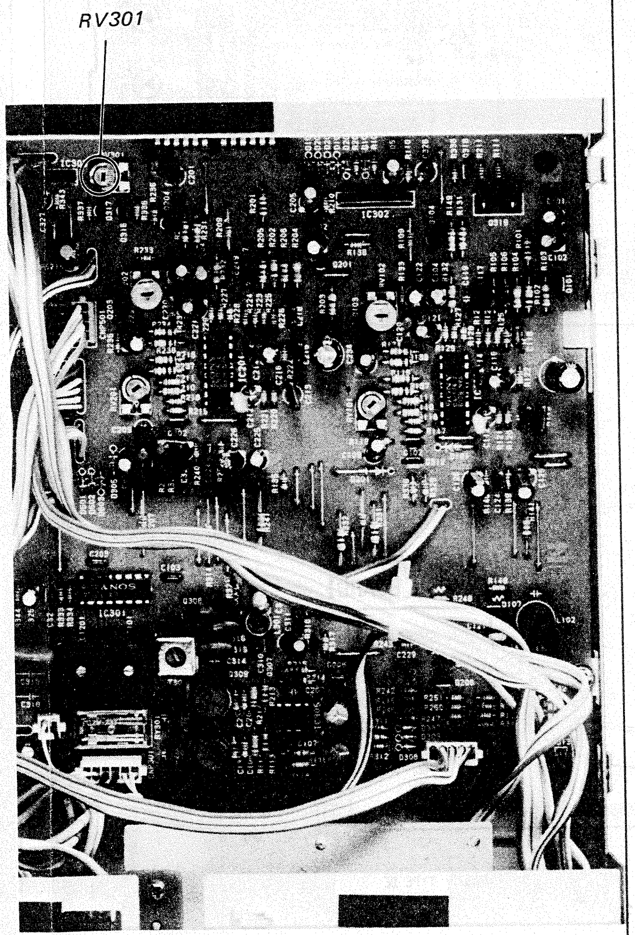
Procedure:

Mode: playback


test tape
P-4-L300 (315 Hz, 0 dB)
set

Adjust RV301 so that LEDs up to "0" scales of the meter go on.

Adjustment Location: audio syscon board



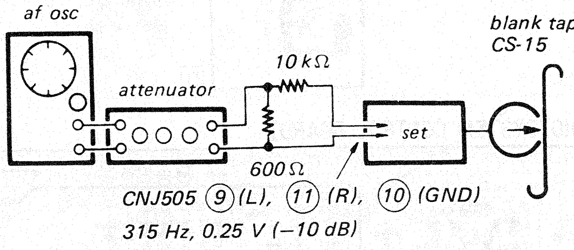
Record Level Adjustment

Setting:

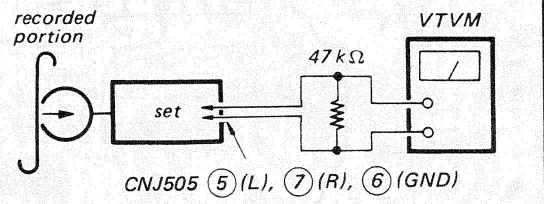
(See page TC-11.)

Procedure:

1. Mode: record


af osc
attenuator
10 kΩ
600 Ω
set
blank tape
CS-15
CNJ505 ⑨ (L), ⑪ (R), ⑩ (GND)
315 Hz, 0.25 V (−10 dB)

2. Mode: playback

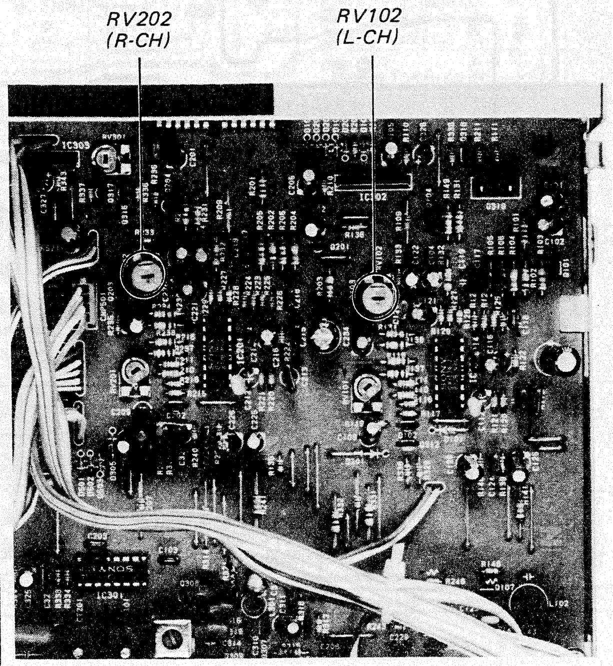

recorded
portion
set
47 kΩ
VTVM
CNJ505 ⑤ (L), ⑦ (R), ⑥ (GND)

3. Play back the signal recorded in step 1.
   Confirm that the signal level is within the specification below. If necessary, adjust RV102 (L-CH), RV202 (R-CH) and repeat the steps 1–3.

Specification:

LINE OUT level: 0.42 – 0.46 V
(−5.5 to −4.5 dB)

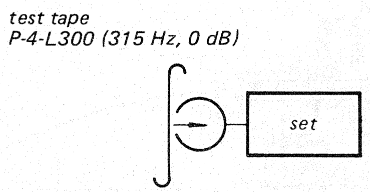
Adjustment Location: audio syscon board


RV202
(R-CH)
RV102
(L-CH)

Level Meter Calibration

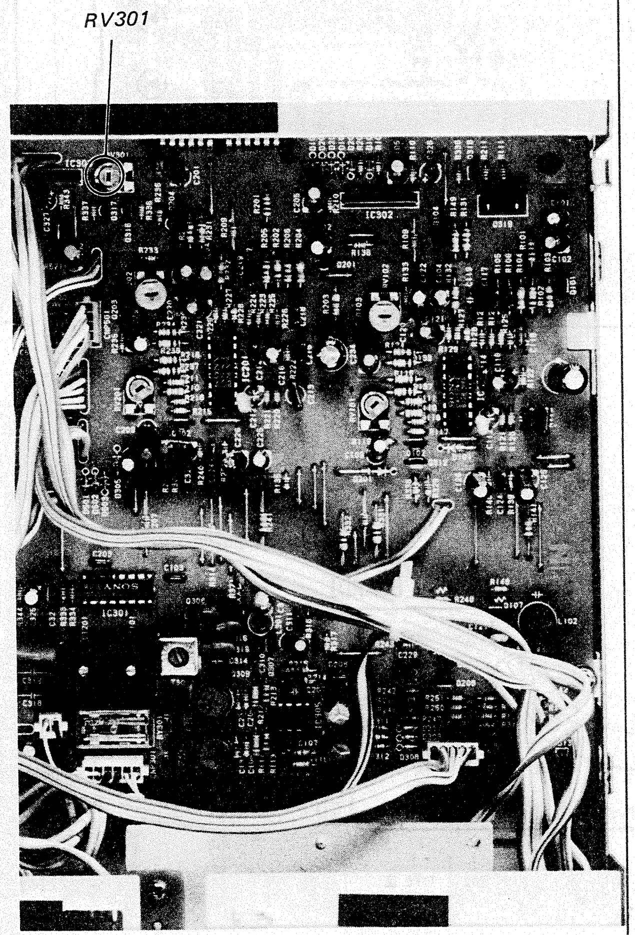
Procedure:

Mode: playback

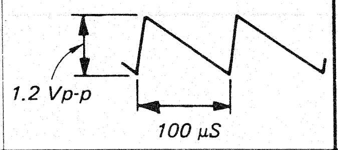
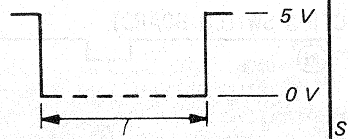
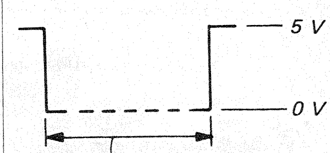
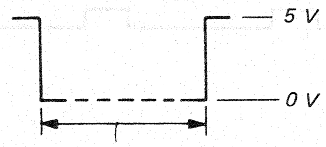
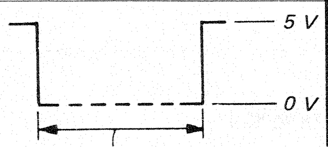
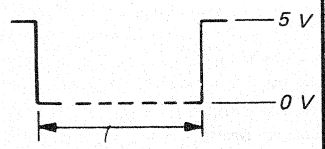
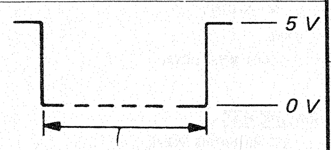
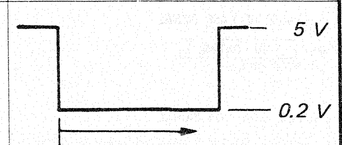
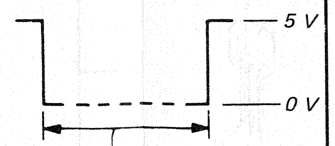
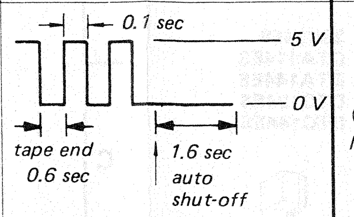
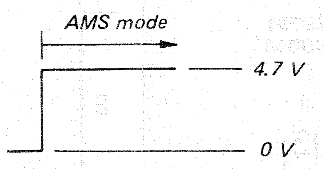
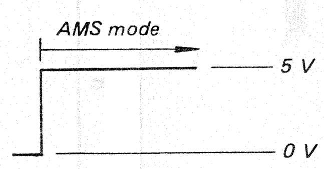
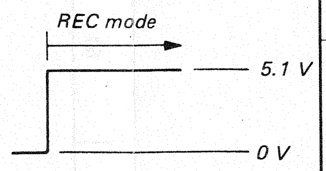
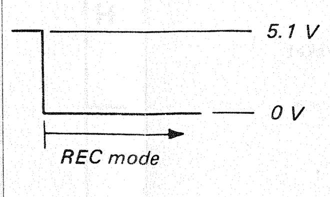
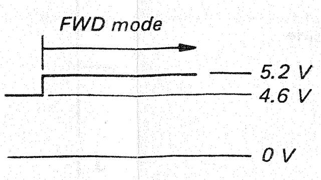
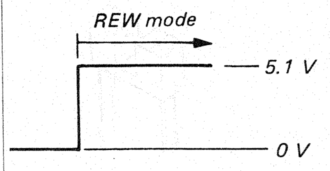
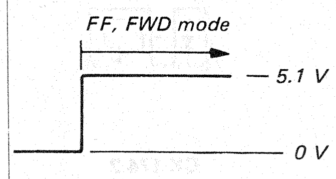
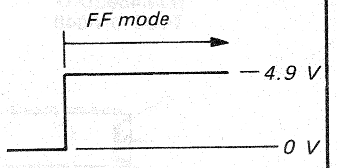
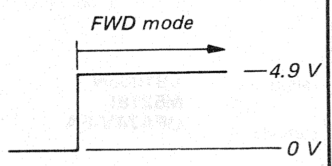
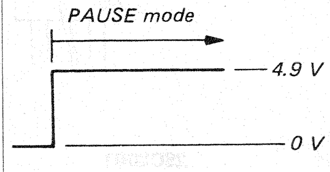
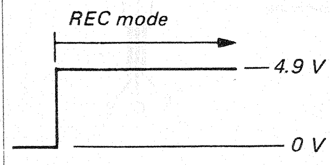
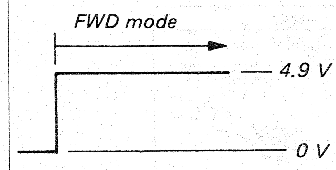
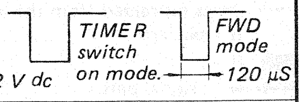

test tape
P-4-L300 (315 Hz, 0 dB)
set

Adjust RV301 so that LEDs up to "0" scales of the meter go on.

Adjustment Location: audio syscon board



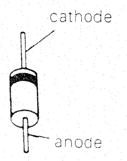
TERMINAL NAME, WAVEFORM AND OPERATING VOLTAGES OF IC501

PIN NO.	Waveform or Voltages
① G	GND
② OSC	 1.2 Vp-p 100 µS
③ RES	5.6 V dc
④ ◀◀	 REW button kept pressed.
⑤ □	 STOP button kept pressed.
⑥ ▶	 FWD button kept pressed.
⑦ ▶▶	 FF button kept pressed.
⑧ ●	 Rec button kept pressed.
⑨ ▮▮	 PAUSE button kept pressed.
⑩ AMS	 AMS button kept pressed.
⑪ ⏏	Cassette lid Close: 5.2 V dc Open: 0 V dc
⑫ ◘	 REC, MUTE button kept pressed.
⑬ SHUT	 0.1 sec 5 V 0 V tape end 0.6 sec 1.6 sec auto shut-off Stopped at tape end in forward mode. (May become 0 V after shut-off depending on the position of take-up reel table.)
⑭ C	5.6 V dc
⑮ AMS LED	 AMS mode 4.7 V 0 V
⑯ AMS	 AMS mode 5 V 0 V
⑰ BIAS	 REC mode 5.1 V 0 V
⑱ OM	 5.1 V 0 V REC mode
⑲ LM	 FWD mode 5.2 V 4.6 V 0 V
⑳ M-R	 REW mode 5.1 V 0 V
㉑ M-F	 FF, FWD mode 5.1 V 0 V
㉒ PM2	 FF mode 4.9 V 0 V
㉓ PM1	 FWD mode 4.9 V 0 V
㉔ ▮▮ LED	 PAUSE mode 4.9 V 0 V
㉕ ● LED	 REC mode 4.9 V 0 V
㉖ ▶ LED	 FWD mode 4.9 V 0 V
㉗ TIM	5.2 V dc  TIMER switch on mode. FWD mode 120 µS
㉘ Vcc	5.6 V dc

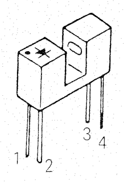
SECTION 4
DIAGRAMS

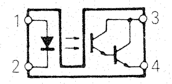
- Semiconductor Lead Layouts

1SS106
1SS202-1
10E-2
HZ9A2L

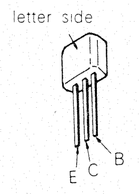

cathode
anode

SPI201-20

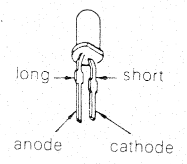




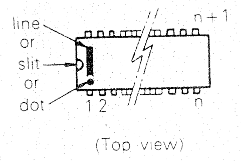
2SA1175


letter side
E
C
B

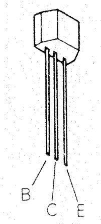
GL-3NG5
GL-3PR5


long
short
anode
cathode

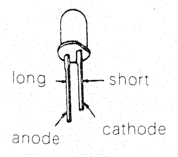
CX-174-2
CX10034
CX10035
NJM4562D-D
TC9310N-040


line
or
slit
or
dot
n+1
1 2
n
(Top view)

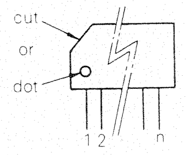
2SC2458
DTA114ES
DTA144ES
DTC124ES
DTC144ES



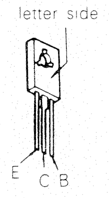
AA3432S


long
short
anode
cathode

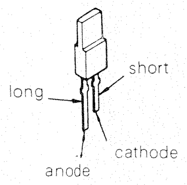
LB1403N
M5218L
UPA74V-FA


cut
or
dot
1 2
n

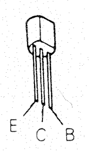
2SB731
2SD809


letter side
E
C
B

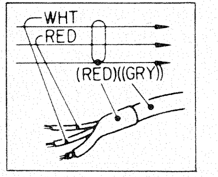
BG5532K
GL-9NG2


short
long
anode
cathode

2SC2001

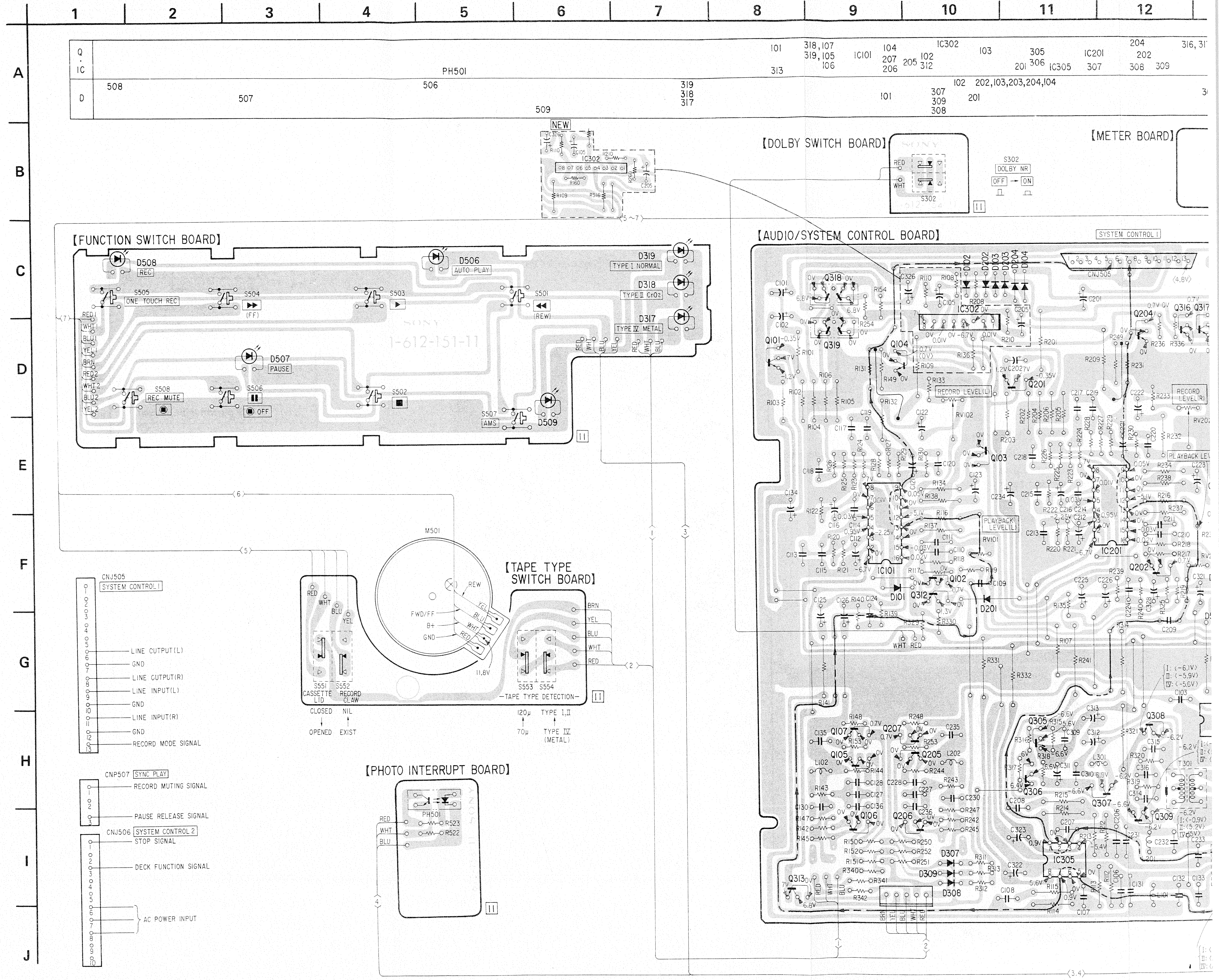


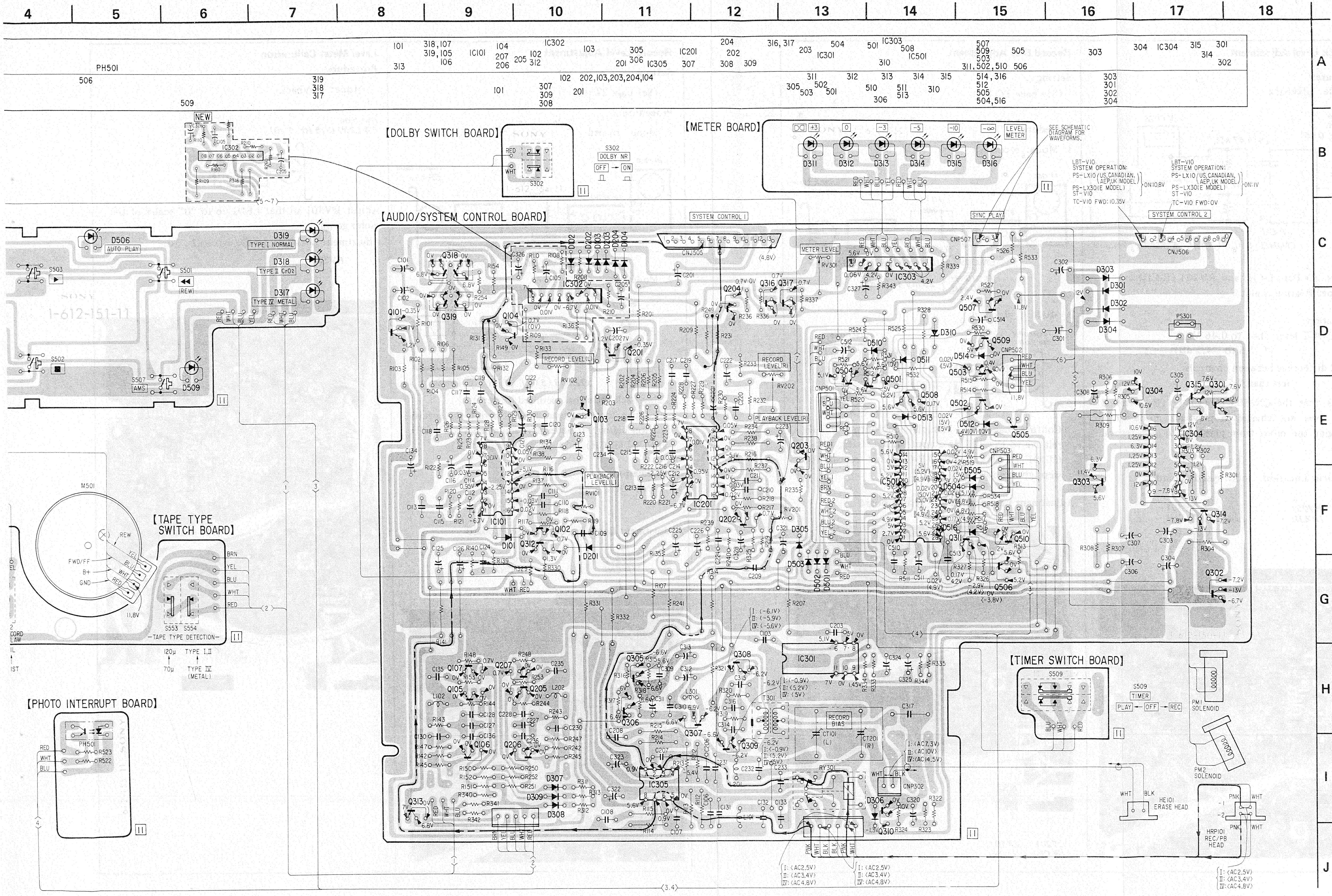
Note:
- Color code of sleeving over the end of the jacket.


WHT
RED
(RED)(GRY)

- ○—— : parts extracted from the component side.
- ▨ : B + pattern
- ▨ : B – pattern.
- ➡ : signal path
- ➡ : L-CH signal path
- ➡ : R-CH signal path

4-1. MOUNTING DIAGRAM


1
2
3
4
5
6
7
8
9
10
11
12
A
B
C
D
E
F
G
H
I
J
Q
IC
D
PH501
[DOLBY SWITCH BOARD]
S302
DOLBY NR
OFF
ON
[METER BOARD]
[FUNCTION SWITCH BOARD]
D508
REC
D506
AUTO PLAY
D319
TYPE I NORMAL
D318
TYPE II CrO2
D317
TYPE IV METAL
S505
ONE TOUCH REC
S504
(FF)
S503
S501
(REW)
D507
PAUSE
S508
REC MUTE
S506
OFF
S502
S507
AMS
D509
1-612-151-11
[AUDIO/SYSTEM CONTROL BOARD]
SYSTEM CONTROL 1
CNJ505
RECORD LEVEL(L)
RECORD LEVEL(R)
PLAYBACK LEVEL(L)
PLAYBACK LEVEL
M501
REW
FWD/FF
B+
GND
[TAPE TYPE SWITCH BOARD]
S551
CASSETTE LID
S552
RECORD CLAW
CLOSED
NIL
OPENED
EXIST
S553
S554
TAPE TYPE DETECTION
120μ
70μ
TYPE I,II
TYPE IV (METAL)
CNJ505
SYSTEM CONTROL 1
LINE OUTPUT(L)
GND
LINE OUTPUT(R)
LINE INPUT(L)
GND
LINE INPUT(R)
GND
RECORD MODE SIGNAL
CNP507
SYNC PLAY
RECORD MUTING SIGNAL
PAUSE RELEASE SIGNAL
CNJ506
SYSTEM CONTROL 2
STOP SIGNAL
DECK FUNCTION SIGNAL
AC POWER INPUT
[PHOTO INTERRUPT BOARD]
PH501
R523
R522
RED
WHT
BLU
YEL
BRN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15
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17
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A
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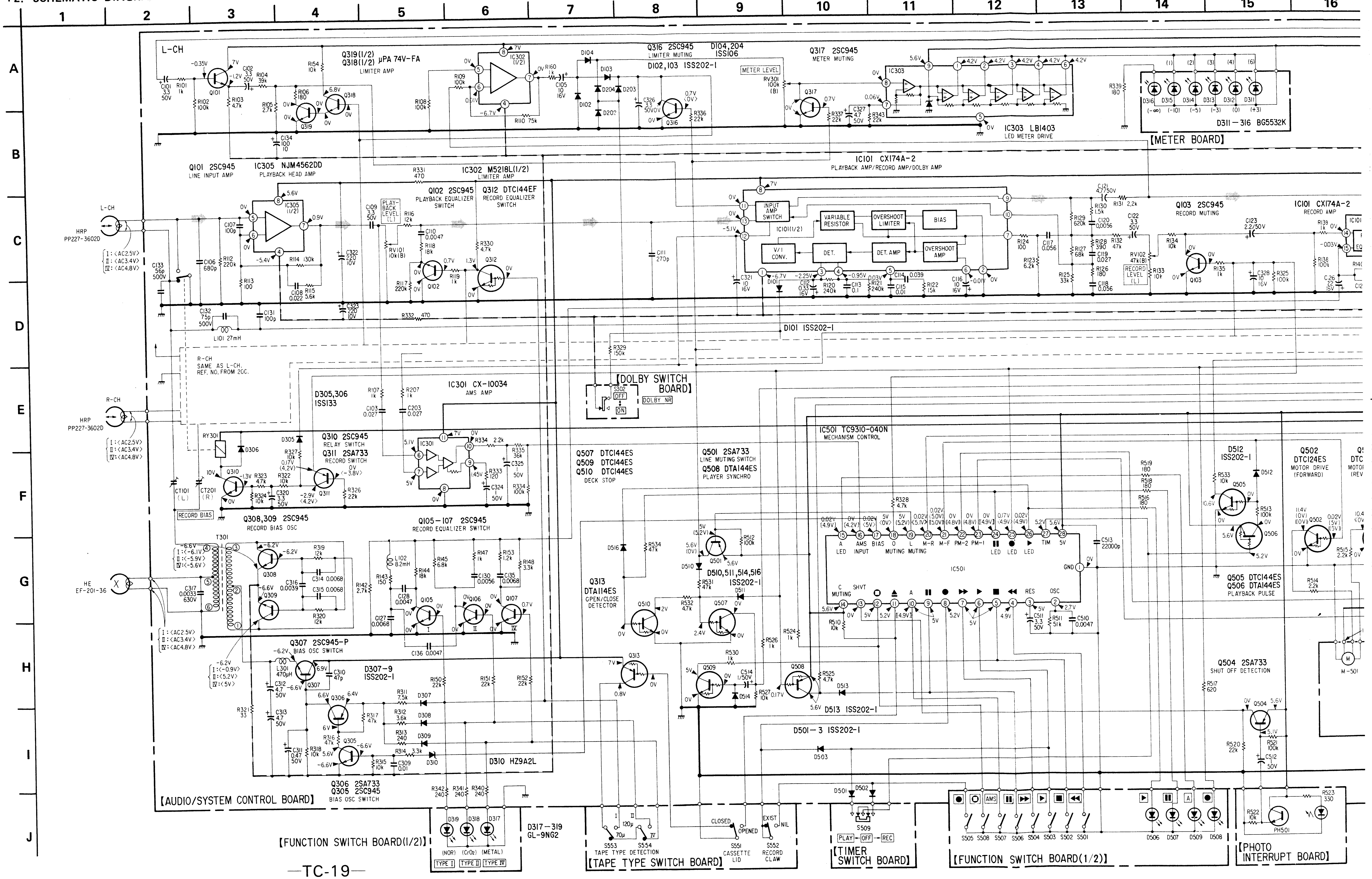
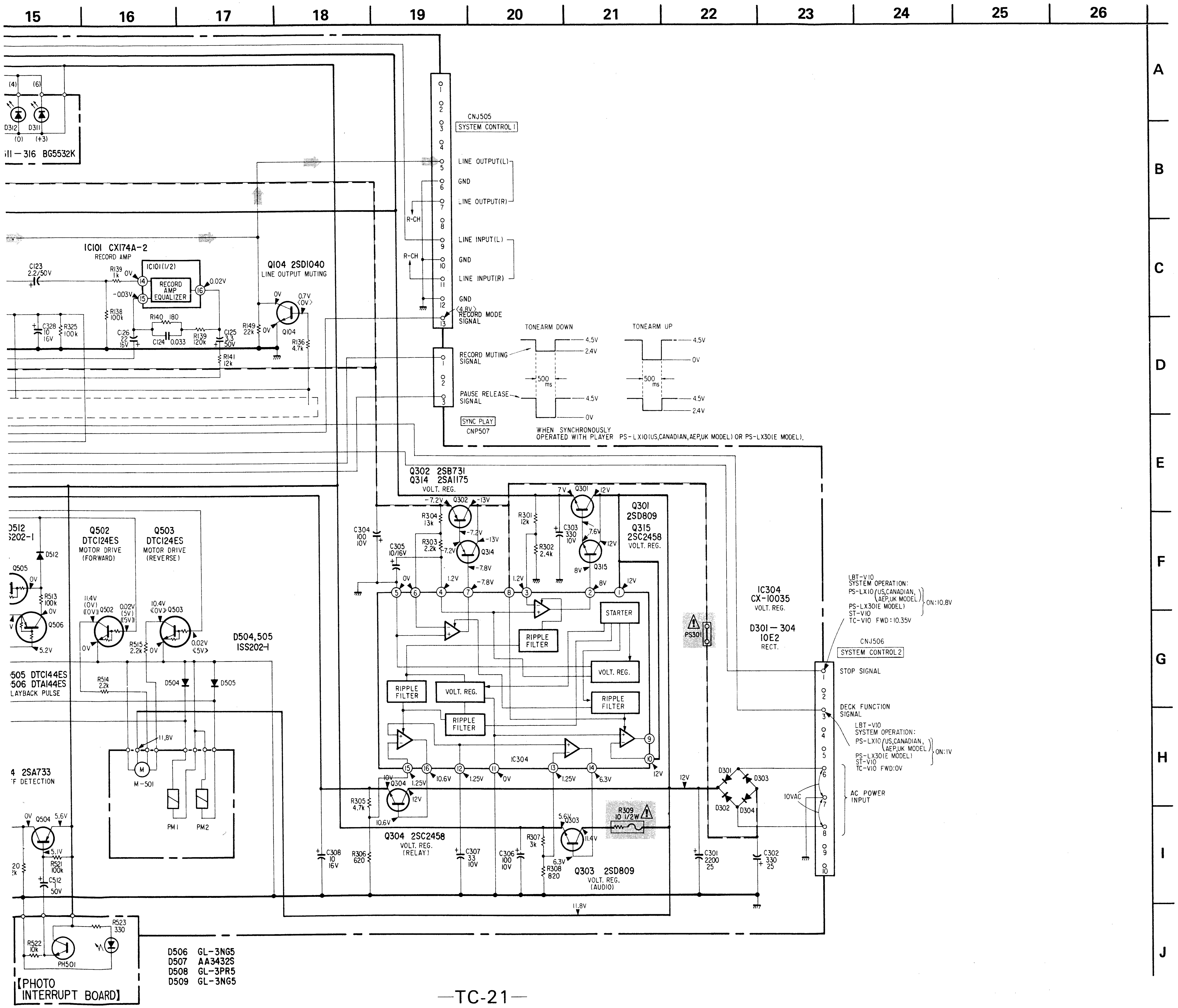
C
D
E
F
G
H
I
J
NEW
IC302
[DOLBY SWITCH BOARD]
S302
DOLBY NR
OFF
ON
[METER BOARD]
D311
D312
D313
D314
D315
D316
LEVEL METER
SEE SCHEMATIC DIAGRAM FOR WAVEFORMS.
LBT-V10
SYSTEM OPERATION:
PS-LX10 (US, CANADIAN, AEP, UK MODEL)
PS-LX30 (E MODEL)
ST-V10
ON:10.8V
TC-V10 FWD:10.35V
LBT-V10
SYSTEM OPERATION:
PS-LX10 (US, CANADIAN, AEP, UK MODEL)
PS-LX30 (E MODEL)
ST-V10
ON:1V
TC-V10 FWD:0V
SYSTEM CONTROL 1
SYNC PLAY
SYSTEM CONTROL 2
[AUDIO/SYSTEM CONTROL BOARD]
CNJ505
CNJ506
IC101
IC201
IC301
IC303
IC304
IC305
IC501
RECORD LEVEL(L)
RECORD LEVEL(R)
PLAYBACK LEVEL(L)
PLAYBACK LEVEL(R)
METER LEVEL
RECORD BIAS
D506
AUTO PLAY
D319
TYPE I NORMAL
D318
TYPE II CrO2
D317
TYPE IV METAL
S503
S501
REW
S502
S507
AMS
D509
M501
[TAPE TYPE SWITCH BOARD]
S553
S554
TAPE TYPE DETECTION
[PHOTO INTERRUPT BOARD]
PH501
[TIMER SWITCH BOARD]
S509
S509
TIMER
PLAY
OFF
REC
PM1 SOLENOID
PM2 SOLENOID
HE101 ERASE HEAD
HRP101 REC/PB HEAD
I : (AC2.5V)
II : (AC3.4V)
IV : (AC4.8V)

4-2. SCHEMATIC DIAGRAMS


1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
A B C D E F G H I J
L-CH
Q319(1/2) Q318(1/2) μPA 74V-FA
LIMITER AMP
IC302 (1/2)
Q316 2SC945
LIMITER MUTING
D104,204 ISS106
D102,103 ISS202-1
METER LEVEL
RV301 100k (B)
Q317 2SC945
METER MUTING
IC303
IC303 LB1403
LED METER DRIVE
D311-316 BG5532K
【METER BOARD】
Q101 2SC945
LINE INPUT AMP
IC305 NJM4562DD
PLAYBACK HEAD AMP
IC302 M5218L(1/2)
LIMITER AMP
Q102 2SC945
PLAYBACK EQUALIZER SWITCH
Q312 DTC144EF
RECORD EQUALIZER SWITCH
IC101 CX174A-2
PLAYBACK AMP/RECORD AMP/DOLBY AMP
INPUT AMP SWITCH
VARIABLE RESISTOR
OVERSHOOT LIMITER
BIAS
V/I CONV.
DET.
DET. AMP
OVERSHOOT AMP
IC101(1/2)
Q103 2SC945
RECORD MUTING
IC101 CX174A-2
RECORD AMP
RECORD LEVEL (L)
PLAY-BACK LEVEL (L)
HRP PP227-3602D
I:<AC2.5V> II:<AC3.4V> IV:<AC4.8V>
L101 27mH
D101 ISS202-1
R-CH SAME AS L-CH. REF. NO. FROM 20C.
【DOLBY SWITCH BOARD】
S302 OFF ON
DOLBY NR
D305,306 ISS133
IC301 CX-10034
AMS AMP
Q310 2SC945
RELAY SWITCH
Q311 2SA733
RECORD SWITCH
Q507 DTC144ES
Q509 DTC144ES
Q510 DTC144ES
DECK STOP
Q501 2SA733
LINE MUTING SWITCH
Q508 DTA144ES
PLAYER SYNCHRO
IC501 TC9310-040N
MECHANISM CONTROL
D512 ISS202-1
Q502 DTC124ES
MOTOR DRIVE (FORWARD)
RY301
CT101 (L)
CT201 (R)
RECORD BIAS
Q308,309 2SC945
RECORD BIAS OSC
Q105-107 2SC945
RECORD EQUALIZER SWITCH
T301
HE EF-201-36
Q313 DTA114ES
OPEN/CLOSE DETECTOR
D510,511,514,516 ISS202-1
A LED
AMS INPUT
BIAS
O MUTING
L MUTING
M-R
M-F
PM-2
PM-1
LED
LED
LED
TIM
5V
IC501
GND
C MUTING
SHVT
RES
OSC
Q505 DTC144ES
Q506 DTA144ES
PLAYBACK PULSE
Q307 2SC945-P
BIAS OSC SWITCH
D307-9 ISS202-1
D513 ISS202-1
D501-3 ISS202-1
Q504 2SA733
SHUT OFF DETECTION
M-501
D310 HZ9A2L
Q306 2SA733
Q305 2SC945
BIAS OSC SWITCH
【AUDIO/SYSTEM CONTROL BOARD】
D317-319 GL-9NG2
(NOR) (CrO2) (METAL)
TYPE I TYPE II TYPE IV
【FUNCTION SWITCH BOARD(1/2)】
S553 TAPE TYPE DETECTION
S554
【TAPE TYPE SWITCH BOARD】
S551 CASSETTE LID
CLOSED OPENED
S552 RECORD CLAW
EXIST NIL
S509
PLAY OFF REC
【TIMER SWITCH BOARD】
S505 S508 S507 S506 S504 S503 S502 S501
D506 D507 D509 D508
【FUNCTION SWITCH BOARD(1/2)】
PH501
【PHOTO INTERRUPT BOARD】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A
B
C
D
E
F
G
H
I
J
D312 D311
BG5532K
IC101 CX174A-2
RECORD AMP
IC101(1/2)
RECORD AMP EQUALIZER
Q104 2SD1040
LINE OUTPUT MUTING
CNJ505
SYSTEM CONTROL 1
LINE OUTPUT(L)
GND
LINE OUTPUT(R)
R-CH
LINE INPUT(L)
GND
LINE INPUT(R)
GND
RECORD MODE SIGNAL
RECORD MUTING SIGNAL
PAUSE RELEASE SIGNAL
SYNC PLAY
CNP507
TONEARM DOWN
TONEARM UP
4.5V
2.4V
0V
500 ms
WHEN SYNCHRONOUSLY OPERATED WITH PLAYER PS-LX10(US,CANADIAN,AEP,UK MODEL) OR PS-LX30(E MODEL).
Q302 2SB731
Q314 2SA1175
VOLT. REG.
Q301 2SD809
Q315 2SC2458
VOLT. REG.
Q502 DTC124ES
MOTOR DRIVE (FORWARD)
Q503 DTC124ES
MOTOR DRIVE (REVERSE)
D504,505 ISS202-I
Q505 DTC144ES
Q506 DTA144ES
PLAYBACK PULSE
2SA733
DETECTION
M-501
PM1
PM2
STARTER
RIPPLE FILTER
VOLT. REG.
IC304
IC304 CX-10035
VOLT. REG.
D301-304 10E2
RECT.
PS301
Q304 2SC2458
VOLT. REG. (RELAY)
Q303 2SD809
VOLT. REG. (AUDIO)
R309 10 1/2W
LBT-V10 SYSTEM OPERATION: PS-LX10(US,CANADIAN, AEP,UK MODEL) PS-LX30(E MODEL) ST-V10 TC-V10 FWD:10.35V
ON:10.8V
CNJ506
SYSTEM CONTROL 2
STOP SIGNAL
DECK FUNCTION SIGNAL
LBT-V10 SYSTEM OPERATION: PS-LX10(US,CANADIAN, AEP,UK MODEL) PS-LX30(E MODEL) ST-V10 TC-V10 FWD:0V
ON:1V
AC POWER INPUT
10VAC
11.8V
PH501
PHOTO INTERRUPT BOARD
D506 GL-3NG5
D507 AA3432S
D508 GL-3PR5
D509 GL-3NG5

Note:

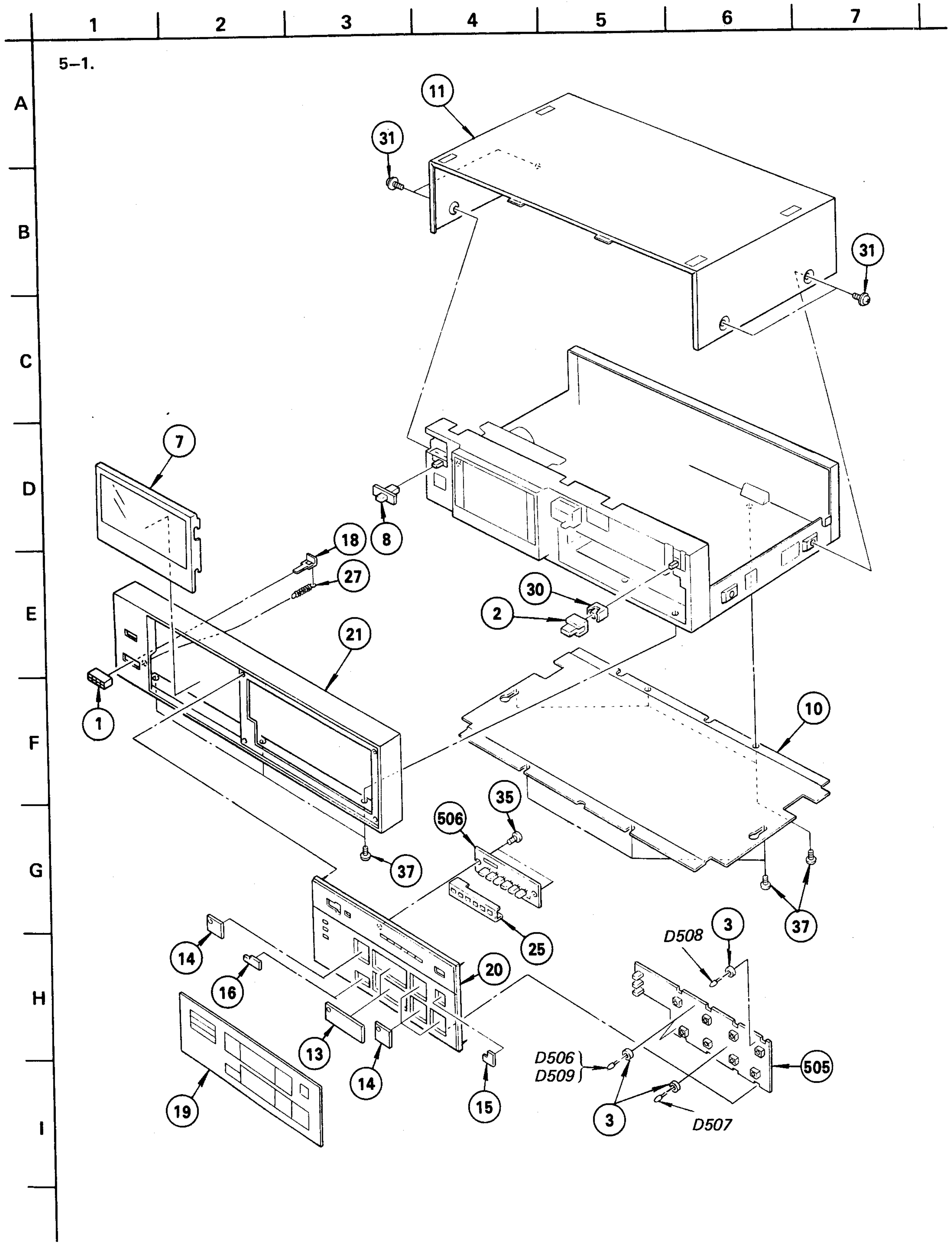
- Components for right channel have same values as for left channel. Reference numbers are coded from 201.
- All capacitors are in μF unless otherwise noted. pF: $\mu\mu$F 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in ohms, ¼W unless otherwise noted.
- ⏛ : fusible resistor.
- ➡ : signal path.
- ▭ : panel designation.
- ▭ : adjustment for repair.
- ━ : B+ bus.
- ╍ : B– bus.
- Readings are taken under no-signal conditions with a VOM (20 kΩ/V).
  ( ): PLAY
  [ ]: AMS
  < >: REC
  (( )): FF
  ≪ ≫: REW
  [[ ]]: PAUSE
  no mark: STOP
- Switch

Ref. No.	Switch	Position
S302	DOLBY	OFF
S501	◀◀	OFF
S502	■	OFF
S503	▶	OFF
S504	▶▶	OFF
S505	●	OFF
S506	❚❚	OFF
S507	AMS	OFF
S508	○	OFF
S509	TIMER	OFF
S551	CASSETTE LID	CLOSE
S552	RECORD CLAW	EXIST
S553, 554	TYPE I	OFF
S553, 554	TYPE II	OFF
S553, 554	TYPE III	ON

Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

SECTION 5
EXPLODED VIEWS AND PARTS LIST

5–1.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E
F
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31
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30
2
21
1
10
35
506
37
37
25
20
14
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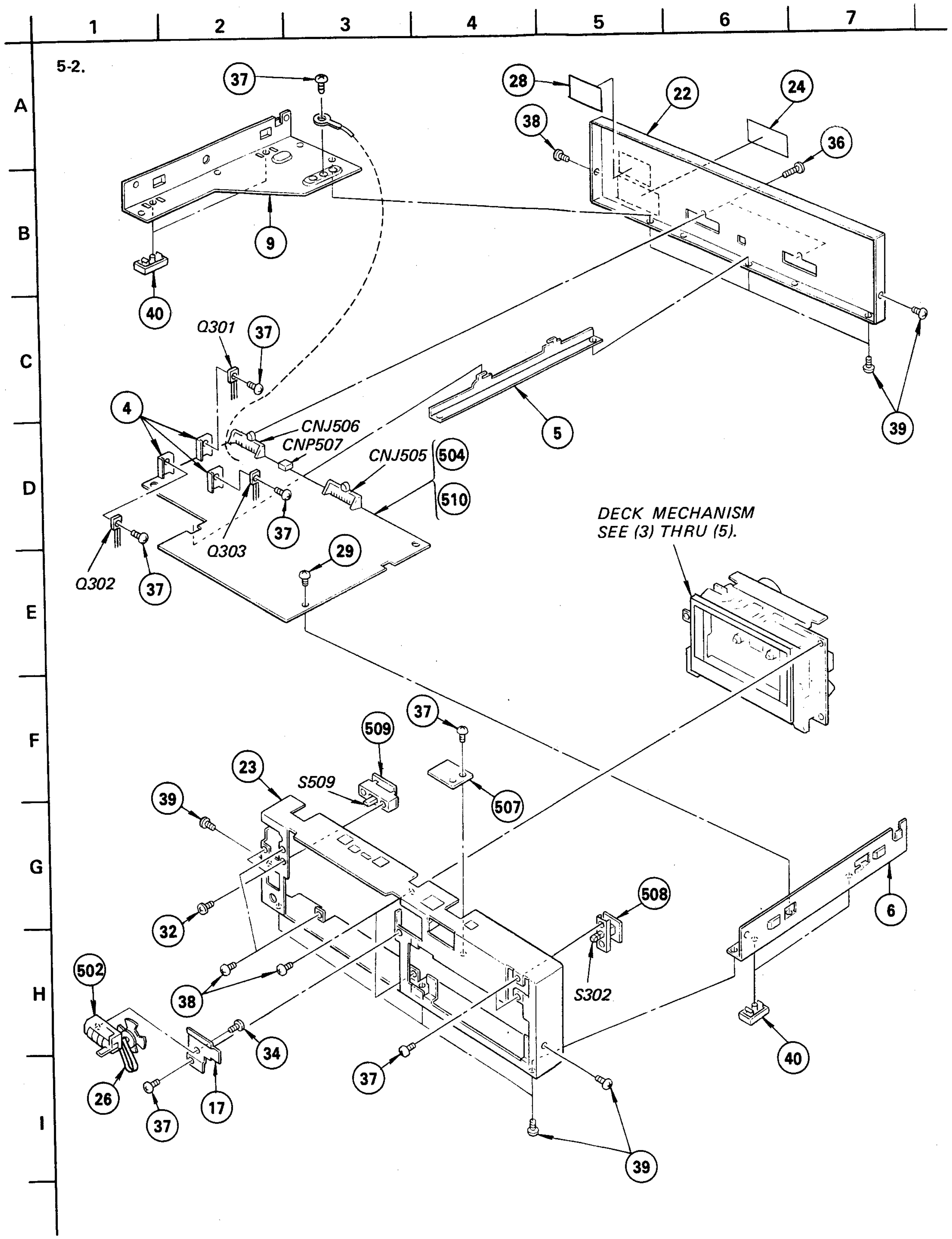
13
14
15
19
D508
3
D506
D509
505
3
D507

5-2.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I
37
28
22
24
38
36
9
40
Q301
37
4
CNJ506
CNP507
CNJ505
504
510
5
39
Q303
37
29
Q302
37
DECK MECHANISM
SEE (3) THRU (5).
37
509
S509
23
507
39
32
508
6
502
38
S302
34
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37
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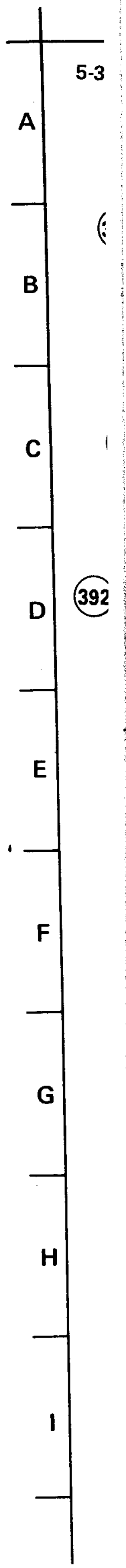
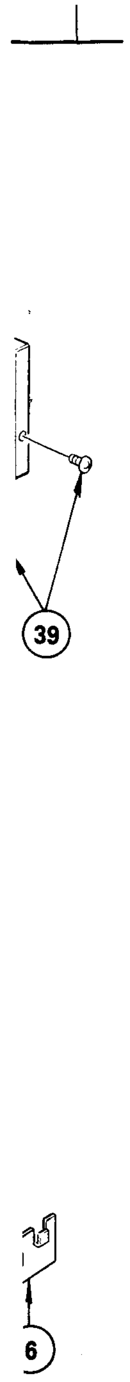
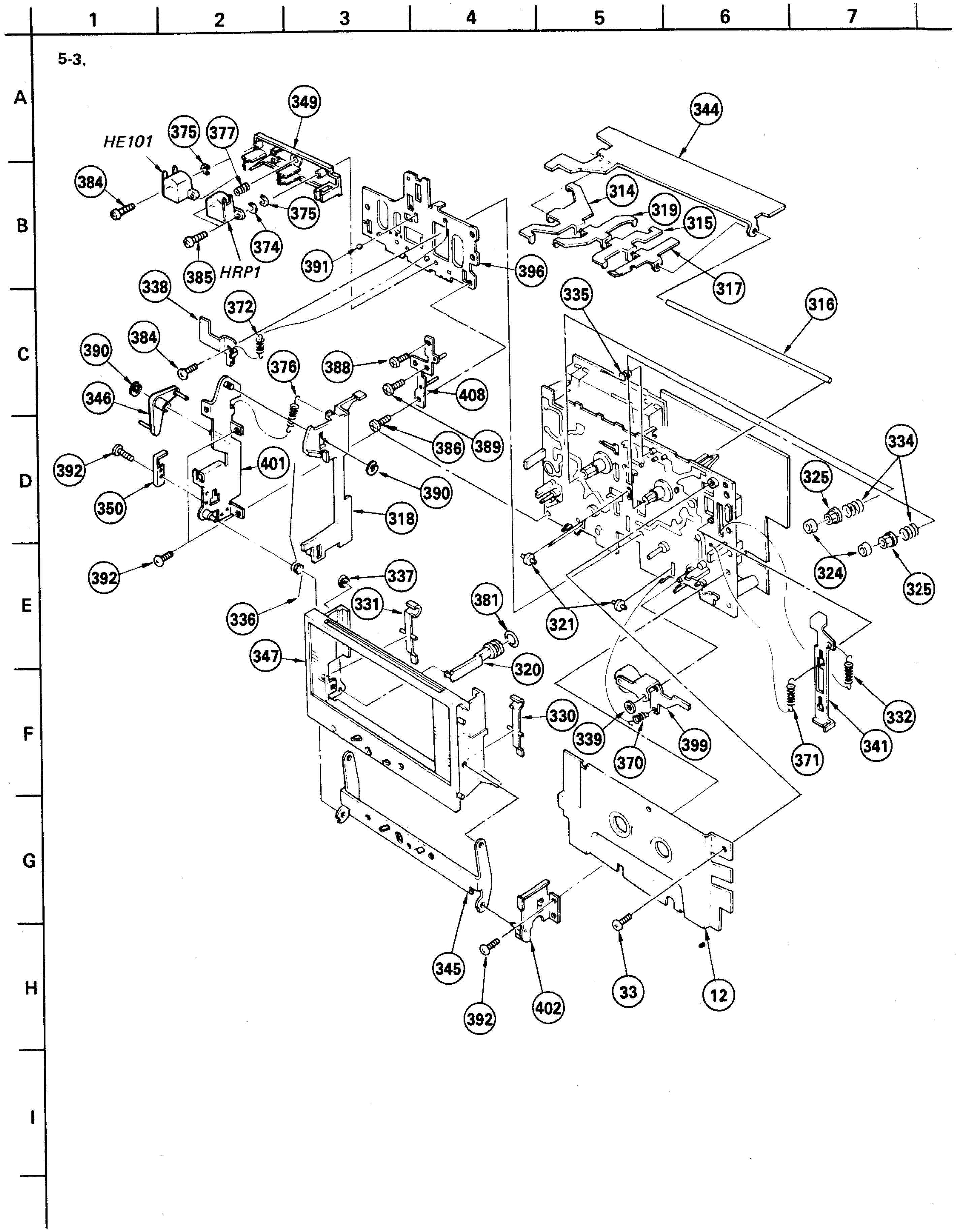
37
17
39

5-3

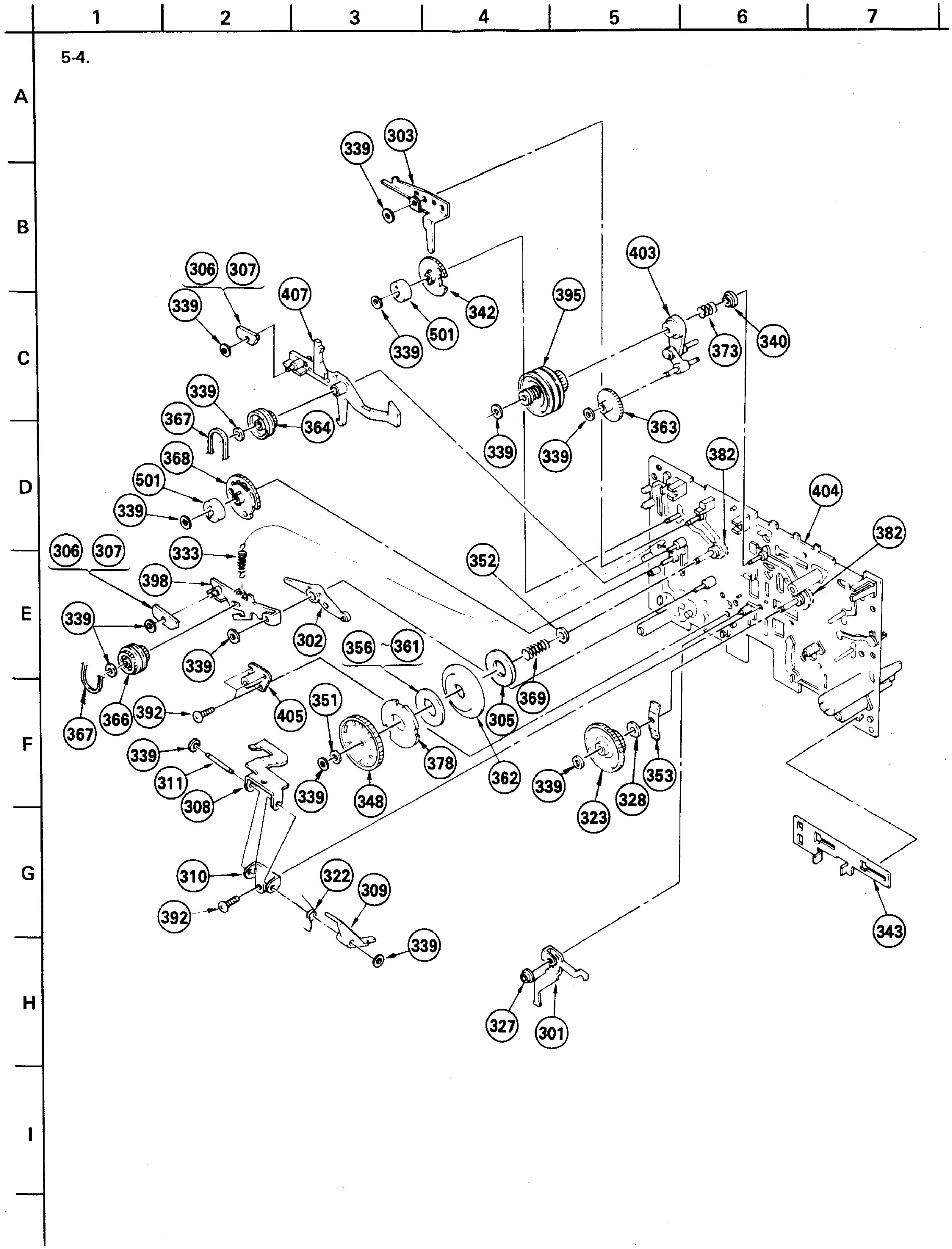

A
B
C
D
E
F
G
H
I
392


39
6

5-3.


A
B
C
D
E
F
G
H
I
HE101
HRP1

5-4.


A
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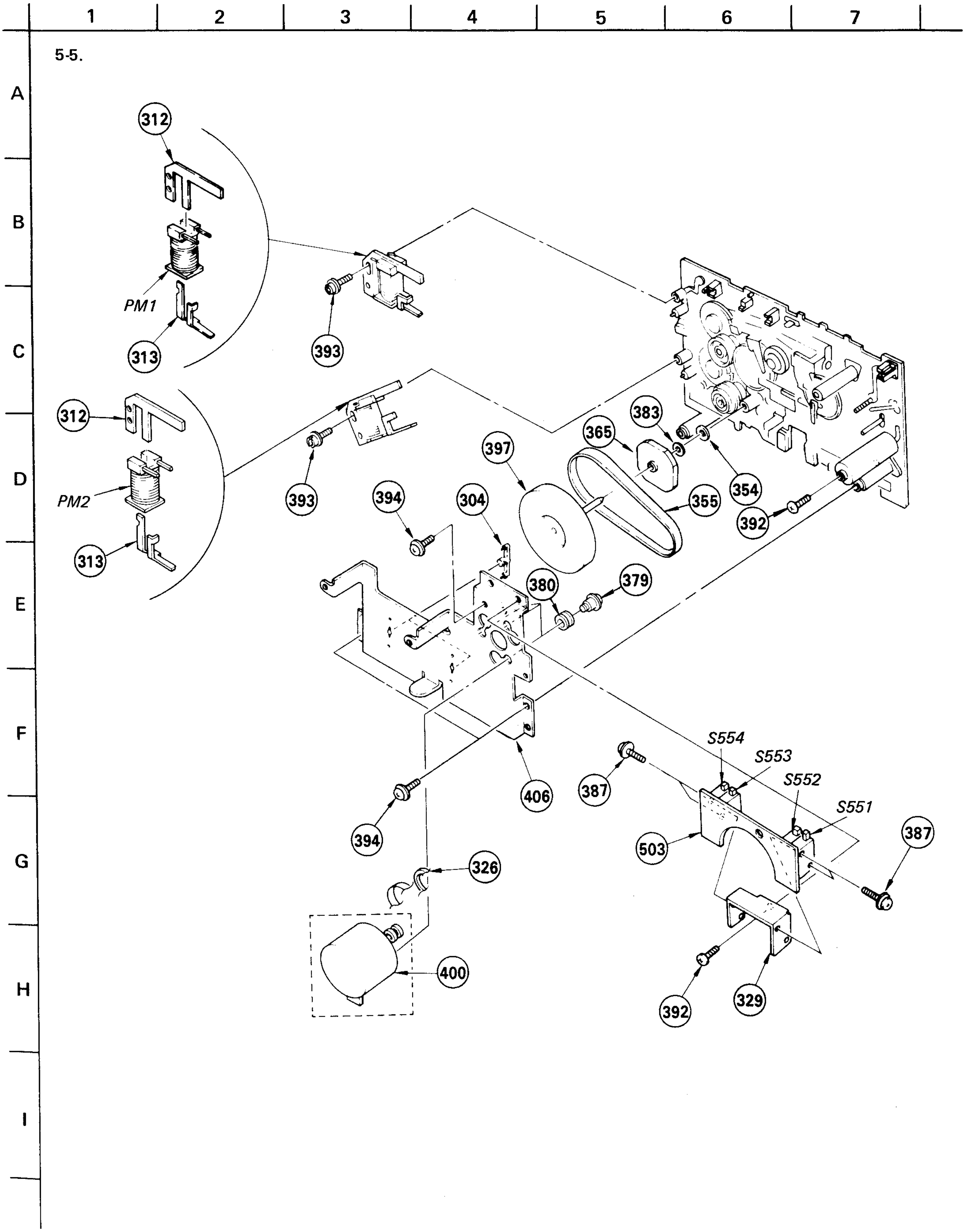
G
H
I
356~361

5-5.


A
B
C
D
E
F
G
H
I
PM1
PM2
S554
S553
S552
S551

GENERAL SECTION

No.	Part No.	Description
1	3-304-419-01	BUTTON, EJECT
2	3-304-926-11	KNOB (A), PUSH
3	3-307-390-00	BUSHING, LOADING SPRING
4	♠;3-312-615-31	HEAT SINK
5	♠;3-313-209-00	PLATE, RELAY
6	♠;3-313-210-00	PLATE, SIDE, RIGHT
7	3-313-215-21	WINDOW, CASSETTE
8	3-313-216-11	KNOB, SWITCH, TIMER
9	♠;3-313-217-00	PLATE, SIDE, LEFT
10	♠;3-313-220-00	PLATE, BOTTOM
11	3-313-223-01	CASE
12	♠;3-313-234-00	PLATE, ORNAMENTAL, MD
13	♠;3-313-254-01	BUTTON (LARGE), CONTROL
14	♠;3-313-255-01	BUTTON (MIDDLE), CONTROL
15	♠;3-313-256-01	BUTTON (SMALL), CONTROL
16	;3-313-257-01	BUTTON, AMS
17	;3-313-258-01	BRACKET, COUNTER
18	;3-313-259-01	PLATE, SLIDE
19	3-313-260-01	SHEET, SWITCH, CONTROL
20	3-313-261-02	ESCUTCHEON
21	3-313-262-01	PANEL, FRONT
22	♠;3-313-263-11	PLATE, JACK (E, AEP, UK)
22	♠;3-313-263-21	PLATE, JACK (US, CANADIAN)
23	♠;3-313-264-01	CHASSIS, AMPLIFIER
24	3-313-266-01	LABEL, MODEL NUMBER (E)
25	♠;3-313-269-01	HOLDER, LED
26	3-530-181-XX	BELT, DETECTING
27	3-540-244-00	SPRING, TENSION
28	3-701-030-00	LABEL, SERIAL NUMBER
29	3-703-249-01	SCREW, S TIGHT, +PTTWH 3X6
30	4-864-307-00	RING
31	4-886-821-11	SCREW, M3 CASE
32	7-621-773-93	SCREW +B 2.6X3
33	7-685-102-29	SCREW +P 2X4 TYPE2 SLIT
34	7-685-531-19	SCREW +BTP 2.6X4 TYPE2 N-S
35	7-685-545-19	SCREW +BTP 3X6 TYPE2 N-S
36	7-685-547-19	SCREW +BTP 3X10 TYPE2 N-S
37	7-685-871-01	SCREW +BVTT 3X6 (S)
38	7-685-871-09	SCREW +BVTT 3X6 (S)
39	7-685-872-01	SCREW +BVTT 3X8 (S)
40	X-4886-405-1	FOOT ASSY

MECHANISM SECTION

No.	Part No.	Description
301	♠;3-307-301-00	LEVER (RELAY), FWD SELECT
302	3-307-307-00	LEVER, FWD
303	♠;3-307-308-00	LEVER, FF
304	3-307-309-00	RETAINER (A), THRUST
305	3-307-313-00	PLATE, YOKE
306	3-307-315-00	ARBOR, MOVABLE
307	3-307-315-01	ARBOR, MOVABLE
308	3-307-319-00	RETAINER, TAKE-UP GEAR
309	3-307-328-00	LEVER, TAKE-UP SELECTION
310	♠;3-307-329-00	PLATE, FULCRUM, SELECTION LEVER
311	3-307-330-00	PIN, FULCRUM PLATE
312	3-307-332-00	ARBOR, FIXED
313	3-307-333-00	ARBOR, TRIGGER
314	♠;3-307-337-00	LEVER, REC DETECTION
315	♠;3-307-338-00	LEVER, METAL DETECTION
316	♠;3-307-339-00	SHAFT, DETECTION LEVER
317	♠;3-307-344-00	LEVER, HALF RETAINER
318	3-307-345-00	SLIDER, EJECT
319	♠;3-307-346-00	LEVER, DETECTION
320	3-307-347-00	PISTON
321	3-307-348-00	ROLLER
322	3-307-355-00	SPRING
323	3-307-360-00	GEAR (S), REEL
324	3-307-362-00	CAP, REEL
325	3-307-363-00	CLAW (N), REEL
326	3-307-366-00	BELT, FAST FORWARD
327	3-307-367-00	BUSHING, SELECT LEVER
328	3-307-369-00	FELT, LIMITER
329	♠;3-307-370-00	BRACKET, SWITCH
330	3-307-371-00	SPRING (LEFT)
331	3-307-372-00	SPRING (RIGHT)
332	3-307-374-00	SPRING, TENSION
333	3-307-378-00	SPRING, TENSION
334	3-307-380-00	SPRING, COMPRESSION
335	3-307-382-00	SPRING
336	3-307-383-00	SPRING
337	3-440-113-01	WASHER, LOADING SPRING
338	3-307-391-00	SPRING
339	3-307-394-00	RETAINER (B), THRUST
340	3-307-395-00	RETAINER, SPRING
341	3-307-397-00	SLIDER, PAUSE
342	3-307-401-00	GEAR, FF CAM
343	♠;3-307-403-00	SLIDER, FWD
344	♠;3-307-404-00	RETAINER, DETECTION SWITCH
345	3-307-405-00	PLATE, FULCRUM, CASSETTE HOLDER

NOTE:

- The mechanical parts with no reference number in the exploded views are not supplied.
- Items marked " ♠ " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- Due to standardization, parts with part numbers (Δ-ΔΔΔ-ΔΔΔ-XX or Δ-ΔΔΔΔ-ΔΔΔ-X) may be different from those used in the set.
- If there are two or more same circuitsin a set such as a stereophonic machine, only typical circuit parts may be indicated and capacitors and resistors in other same circuits may be omitted.

CAPACITORS:
MF:μF, PF:μμF.

RESISTORS
- All resistors are in ohms.
- F : nonflammable

COILS
- MMH : mH, UH : μH

SEMICONDUCTORS
In each case, U : μ, for example:
UA···: μA···, UPA···: μPA···, UPC···: μPC,
UPD···: μPD···

MECHANISM SECTION

No.	Part No.	Description
346	3-307-406-00	LEVER, EJECT
347	3-307-407-31	HOLDER, CASSETTE
348	3-307-412-00	GEAR, TAKE-UP REEL
349	3-307-414-00	BRACKET, HEAD
350	3-307-416-00	STOPPER, LOADING
351	3-307-465-00	RETAINER, T SIDE
352	3-307-467-00	RETAINER, SPRING
353	3-307-475-00	PLATE, TENSION, BACK
354	3-307-482-00	WASHER, LUMILER
355	3-307-483-00	BELT (R), CAPSTAN
356	3-307-493-01	SPACER
357	3-307-493-11	SPACER
358	3-307-493-21	SPACER
359	3-307-493-31	SPACER
360	3-307-493-41	SPACER
361	3-307-493-51	SPACER
362	3-307-953-00	MAGNET, REEL TABLE
363	3-307-970-00	GEAR, FR
364	3-312-405-00	PULLEY, DRIVING
365	3-312-406-00	GEAR (T), PINION
366	3-312-408-00	GEAR (B), CONVERSION
367	3-312-409-00	BELT, FF DRIVING
368	3-312-412-00	GEAR (B), CAM, FWD
369	3-312-429-00	SPRING, COMPRESSION
370	3-312-432-00	SPRING, TENSION
371	3-312-448-00	SPRING, TENSION
372	3-312-451-00	SPRING, TENSION
373	3-312-452-00	SPRING, COMPRESSION
374	3-513-237-01	PLATE
375	3-513-237-11	PLATE
376	3-531-541-00	SPRING, TENSION
377	3-539-237-00	SPRING (3), COMPRESSION
378	3-561-827-00	PLATE (A), HYSTERESIS
379	3-570-027-00	SCREW, MOTOR
380	3-570-118-00	CUSHION, MOTOR
381	3-575-392-00	RING, PISTON
382	3-701-437-11	WASHER
383	3-701-438-11	WASHER, 2.5
384	3-701-465-00	SCREW, LOCK
385	3-701-466-00	SCREW, LOCK
386	3-701-467-00	SCREW, LOCK
387	7-621-760-05	+PSW, 2.6X16
388	7-621-770-20	SCREW +B 2X5
389	7-621-772-00	SCREW +B 2X3
390	7-624-105-04	STOP RING 2.3, TYPE -E

MECHANISM SECTION

No.	Part No.	Description
391	7-671-111-11	STEEL, BOUL 1.5MM
392	7-685-860-04	SCREW +BVTT 2.6X4 (S)
393	7-687-204-21	TOTSU PTPWH 2X6 NON-SLIT, TYPE2
394	7-687-246-21	SCREW, TOTSU PTPWH 3X8, TYPE2
395	A-2142-022-A	PULLEY ASSY, FR
396	X-3307-301-0	CHASSIS (N) ASSY, HEAD
397	X-3307-302-5	FLYWHEEL (N) ASSY
398	♠;X-3307-305-0	LEVER ASSY, FWD LOCK
399	X-3307-307-0	PINCH ROLLER (N) ASSY
400	X-3307-308-0	MOTOR (N) ASSY
401	♠;X-3307-309-0	PLATE (LEFT) ASSY, SIDE
402	♠;X-3307-310-0	PLATE (RIGHT) ASSY, SIDE
403	X-3307-312-4	LEVER ASSY, FR
404	X-3307-330-1	CHASSIS (N) ASSY, MECHANICAL
405	X-3307-338-0	BEARING ASSY, CAPSTAN
406	X-3307-345-0	RETAINER, THRUST
407	X-3307-348-0	LEVER ASSY, FF LOCK
408	X-3307-920-0	PLATE ASSY, ADJUSTMENT

NOTE:

- The mechanical parts with no reference number in the exploded views are not supplied.
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COILS
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In each case, U : μ, for example:
UA···: μA···, UPA···: μPA···, UPC···: μPC,
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ELECTRICAL PARTS

Ref.No.	Part No.	Description			
501	1-452-202-00	MAGNET			
502	1-548-563-41	COUNTER, TAPE			
503	♠;1-611-188-00	PC BOARD, TAPE SELECTION SWITCH			
504	♠;1-612-150-13	PC BOARD, AUDIO.SYSCON			
505	♠;1-612-151-11	PC BOARD, CONTROL SWITCH			
506	♠;1-612-152-12	PC BOARD, METER			
507	♠;1-612-153-11	PC BOARD, PHOTO INTERRUPT			
508	♠;1-612-154-11	PC BOARD, DOLBY SW			
509	♠;1-612-155-11	PC BOARD, TIMER SW			
510	♠;A-2056-217-A	PC BOARD ASSY, AUDIO			
C101	1-123-382-00	ELECT	3.3MF	20%	50V
C102	1-123-382-00	ELECT	3.3MF	20%	50V
C103	1-130-625-00	FILM	0.027MF	5%	50V
C105	1-123-356-00	ELECT	10MF	20%	16V
C106	1-162-108-00	CERAMIC	680PF	10%	50V
C107	1-102-973-00	CERAMIC	100PF	5%	50V
C108	1-130-624-00	FILM	0.022MF	5%	50V
C109	1-124-184-00	ELECT	3.3MF	20%	50V
C110	1-162-112-00	CERAMIC	0.0047MF	30%	25V
C111	1-102-111-00	CERAMIC	270PF	10%	50V
C112	1-127-457-00	ELECT(SOLID)	0.33MF	20%	25V
C113	1-130-632-00	FILM	0.1MF	5%	50V
C114	1-130-627-00	FILM	0.039MF	5%	50V
C115	1-130-620-00	FILM	0.01MF	5%	50V
C116	1-123-356-00	ELECT	10MF	20%	16V
C117	1-130-629-00	FILM	0.056MF	5%	50V
C118	1-130-629-00	FILM	0.056MF	5%	50V
C119	1-130-625-00	FILM	0.027MF	5%	50V
C120	1-108-573-00	MYLAR	0.0056MF	5%	50V
C121	1-123-369-00	ELECT	4.7MF	20%	50V
C122	1-123-382-00	ELECT	3.3MF	20%	50V
C123	1-123-381-00	ELECT	2.2MF	20%	50V
C124	1-130-626-00	FILM	0.033MF	5%	50V
C125	1-123-382-00	ELECT	3.3MF	20%	50V
C126	1-123-330-00	ELECT	22MF	20%	16V
C127	1-108-575-00	MYLAR	0.0068MF	5%	50V
C128	1-108-571-00	MYLAR	0.0047MF	5%	50V
C130	1-108-573-00	MYLAR	0.0056MF	5%	50V
C131	1-162-037-00	CERAMIC	100PF	5%	50V
C132	1-107-167-00	MICA	75PF	5%	500V
C133	1-107-165-00	MICA	56PF	5%	500V
C134	1-123-307-00	ELECT	100MF	20%	10V
C135	1-108-575-00	MYLAR	0.0068MF	5%	50V
C136	1-108-571-00	MYLAR	0.0047MF	5%	50V
C301	1-123-338-00	ELECT	2200MF	20%	25V
C302	1-123-335-00	ELECT	330MF	20%	25V
C303	1-123-309-00	ELECT	330MF	20%	10V
C304	1-123-307-00	ELECT	100MF	20%	10V
C305	1-123-356-00	ELECT	10MF	20%	16V
C306	1-123-307-00	ELECT	100MF	20%	10V
C307	1-123-305-00	ELECT	33MF	20%	10V
C308	1-123-356-00	ELECT	10MF	20%	16V
C309	1-130-620-00	FILM	0.01MF	5%	50V
C310	1-101-880-00	CERAMIC	47PF	5%	50V
C311	1-123-379-00	ELECT	0.47MF	20%	50V
C312	1-123-369-00	ELECT	4.7MF	20%	50V
C313	1-123-369-00	ELECT	4.7MF	20%	50V
C314	1-130-293-00	FILM	0.0068MF	5%	100V
C315	1-130-293-00	FILM	0.0068MF	5%	100V
C316	1-130-287-00	FILM	0.0039MF	5%	100V
C317	1-129-708-00	FILM	0.0033MF	10%	630V
C320	1-123-382-00	ELECT	3.3MF	20%	50V
C321	1-123-356-00	ELECT	10MF	20%	16V
C322	1-123-308-00	ELECT	220MF	20%	10V
C323	1-123-308-00	ELECT	220MF	20%	10V
C324	1-123-380-00	ELECT	1MF	20%	50V
C325	1-123-380-00	ELECT	1MF	20%	50V
C326	1-123-356-00	TANTALUM	3.3MF	20%	50V
C327	1-123-369-00	ELECT	4.7MF	20%	50V
C328	1-123-356-00	ELECT	10MF	20%	16V
C510	1-108-571-00	MYLAR	0.0047MF	5%	50V
C511	1-123-382-00	ELECT	3.3MF	20%	50V
C512	1-123-380-00	ELECT	1MF	20%	50V
C513	1-161-494-00	CERAMIC	0.022MF	30%	25V
C514	1-123-380-00	ELECT	1MF	20%	50V
♠CNP301;	1-560-064-00	PIN, CONNECTOR 6P			
♠CNP302;	1-560-060-00	PIN, CONNECTOR 2P			
♠CNP501;	1-560-062-00	PIN, CONNECTOR 4P			
♠CNP502;	1-560-062-00	PIN, CONNECTOR 4P			
♠CNP503;	1-560-062-00	PIN, CONNECTOR 4P			
♠CNP504;	1-560-063-00	PIN, CONNECTOR 5P			
CNP505	1-562-068-00	SOCKET, CONNECTOR 13P(SYSTEM CONTROL 1)			
CNP506	1-562-479-11	SOCKET, CONNECTOR 10P(SYSTEM CONTROL 2)			
CNP507	1-564-358-00	PIN, CONNECTOR 3P (PLAYER REMOTE TERMINAL)			
CT101	1-141-225-00	CAP, TUNING, TRIMMER			
CT201	1-141-225-00	CAP, TUNING, TRIMMER			
D101	8-719-107-94	DIODE 1SS202-1			
D102	8-719-107-94	DIODE 1SS202-1			
D103	8-719-107-94	DIODE 1SS202-1			

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D104	8-719-911-06	DIODE 1SS106
D201	8-719-107-94	DIODE 1SS202-1
D202	8-719-107-94	DIODE 1SS202-1
D203	8-719-107-94	DIODE 1SS202-1
D204	8-719-911-06	DIODE 1SS106
D301	8-719-200-02	DIODE 10E-2
D302	8-719-200-02	DIODE 10E-2
D303	8-719-200-02	DIODE 10E-2
D304	8-719-200-02	DIODE 10E-2
D305	8-719-107-94	DIODE 1SS202-1
D306	8-719-107-94	DIODE 1SS202-1
D307	8-719-107-94	DIODE 1SS202-1
D308	8-719-107-94	DIODE 1SS202-1
D309	8-719-107-94	DIODE 1SS202-1
D310	8-719-910-92	DIODE HZ9A2L
D311	8-719-907-69	DIODE BG5532K
D312	8-719-907-69	DIODE BG5532K
D313	8-719-907-69	DIODE BG5532K
D314	8-719-907-69	DIODE BG5532K
D315	8-719-907-69	DIODE BG5532K
D316	8-719-907-69	DIODE BG5532K
D317	8-719-909-20	DIODE GL-9NG2
D318	8-719-909-20	DIODE GL-9NG2
D319	8-719-909-20	DIODE GL-9NG2
D501	8-719-107-94	DIODE 1SS202-1
D502	8-719-107-94	DIODE 1SS202-1
D503	8-719-107-94	DIODE 1SS202-1
D504	8-719-107-94	DIODE 1SS202-1
D505	8-719-107-94	DIODE 1SS202-1
D506	8-719-930-50	DIODE GL-3NG5
D507	8-719-934-34	DIODE AA3432S
D508	8-719-903-05	DIODE GL-3PR5
D509	8-719-930-50	DIODE GL-3NG5
D510	8-719-107-94	DIODE 1SS202-1
D511	8-719-107-94	DIODE 1SS202-1
D512	8-719-107-94	DIODE 1SS202-1
D513	8-719-107-94	DIODE 1SS202-1
D514	8-719-107-94	DIODE 1SS202-1
D516	8-719-107-94	DIODE 1SS202-1
HE101	8-825-724-00	HEAD, ERASE EF-201-36
HRP101	8-825-507-60	HEAD (PP227-3602D)
IC101	8-759-905-57	IC CX-174-2
IC201	8-759-905-57	IC CX-174-2
IC301	8-759-700-46	IC CX10034
IC302	8-759-600-02	IC M5218L
IC303	8-759-801-04	IC LB1403N
IC304	8-759-700-47	IC CX10035
IC305	8-759-705-62	IC NJM4562D-D
IC501	8-759-202-05	IC TC9310N-040
L101	1-408-262-00	MICRO INDUCTOR 27MMH
L102	1-408-256-00	MICRO INDUCTOR 8.2MMH
L201	1-408-262-00	MICRO INDUCTOR 27MMH
L202	1-408-256-00	MICRO INDUCTOR 8.2MMH
L301	1-407-177-XX	MICRO INDUCTOR 470UH
M501	1-541-201-00	MOTOR
PHI501	8-719-902-90	PHOTO INTERRUPTOR SPI201-20
PM1	1-454-316-00	SOLENOID, PLUNGER
PM2	1-454-316-00	SOLENOID, PLUNGER
PS301 ⚠	1-532-605-00	LINK, IC
Q101	8-729-245-83	TRANSISTOR 2SC2458
Q102	8-729-245-83	TRANSISTOR 2SC2458
Q103	8-729-245-83	TRANSISTOR 2SC2458
Q104	8-729-100-13	TRANSISTOR 2SC2001
Q105	8-729-245-83	TRANSISTOR 2SC2458
Q106	8-729-245-83	TRANSISTOR 2SC2458
Q107	8-729-245-83	TRANSISTOR 2SC2458
Q201	8-729-245-83	TRANSISTOR 2SC2458
Q202	8-729-245-83	TRANSISTOR 2SC2458
Q203	8-729-245-83	TRANSISTOR 2SC2458
Q204	8-729-100-13	TRANSISTOR 2SC2001
Q205	8-729-245-83	TRANSISTOR 2SC2458
Q206	8-729-245-83	TRANSISTOR 2SC2458
Q207	8-729-245-83	TRANSISTOR 2SC2458
Q301	8-729-180-93	TRANSISTOR 2SD809
Q302	8-729-173-13	TRANSISTOR 2SB731
Q303	8-729-180-93	TRANSISTOR 2SD809
Q304	8-729-245-83	TRANSISTOR 2SC2458
Q305	8-729-245-83	TRANSISTOR 2SC2458
Q306	8-729-117-54	TRANSISTOR 2SA1175
Q307	8-729-245-83	TRANSISTOR 2SC2458
Q308	8-729-245-83	TRANSISTOR 2SC2458
Q309	8-729-245-83	TRANSISTOR 2SC2458
Q310	8-729-245-83	TRANSISTOR 2SC2458
Q311	8-729-117-54	TRANSISTOR 2SA1175
Q312	8-729-900-89	TRANSISTOR DTC144ES
Q313	8-729-900-61	TRANSISTOR DTA114ES

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Replace only with part number specified.

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Q314	8-729-117-54	TRANSISTOR 2SA1175			
Q315	8-729-245-83	TRANSISTOR 2SC2458			
Q316	8-729-245-83	TRANSISTOR 2SC2458			
Q317	8-729-245-83	TRANSISTOR 2SC2458			
Q318	8-759-101-13	IC UPA74V-FA			
Q319	8-759-101-13	IC UPA74V-FA			
Q501	8-729-117-54	TRANSISTOR 2SA1175			
Q502	8-729-900-36	TRANSISTOR DTC124ES			
Q503	8-729-900-36	TRANSISTOR DTC124ES			
Q504	8-729-117-54	TRANSISTOR 2SA1175			
Q505	8-729-900-89	TRANSISTOR DTC144ES			
Q506	8-729-900-65	TRANSISTOR DTA144ES			
Q507	8-729-900-89	TRANSISTOR DTC144ES			
Q508	8-729-900-65	TRANSISTOR DTA144ES			
Q509	8-729-900-89	TRANSISTOR DTC144ES			
Q510	8-729-900-89	TRANSISTOR DTC144ES			
R101	1-247-131-00	CARBON	1K	5%	1/4W
R102	1-247-179-00	CARBON	100K	5%	1/4W
R103	1-247-147-00	CARBON	4.7K	5%	1/4W
R104	1-246-511-00	CARBON	39K	5%	1/4W
R105	1-246-483-00	CARBON	2.7K	5%	1/4W
R106	1-246-455-00	CARBON	180	5%	1/4W
R107	1-247-131-00	CARBON	1K	5%	1/4W
R108	1-247-879-00	CARBON	100K	5%	1/6W
R109	1-247-879-00	CARBON	100K	5%	1/6W
R110	1-247-876-00	CARBON	75K	5%	1/6W
R112	1-246-529-00	CARBON	220K	5%	1/4W
R113	1-247-107-00	CARBON	100	5%	1/4W
R114	1-246-524-00	CARBON	130K	5%	1/4W
R115	1-247-149-00	CARBON	5.6K	5%	1/4W
R116	1-246-499-00	CARBON	12K	5%	1/4W
R117	1-247-887-00	CARBON	220K	5%	1/6W
R118	1-247-861-00	CARBON	18K	5%	1/6W
R119	1-247-831-00	CARBON	1K	5%	1/6W
R120	1-247-888-00	CARBON	240K	5%	1/6W
R121	1-247-888-00	CARBON	240K	5%	1/6W
R122	1-247-859-00	CARBON	15K	5%	1/6W
R123	1-247-850-00	CARBON	6.2K	5%	1/6W
R124	1-247-807-00	CARBON	100	5%	1/6W
R125	1-247-867-00	CARBON	33K	5%	1/6W
R126	1-247-813-00	CARBON	180	5%	1/6W
R127	1-247-875-00	CARBON	68K	5%	1/6W
R128	1-247-821-00	CARBON	390	5%	1/6W
R129	1-247-898-00	CARBON	620K	5%	1/6W
R130	1-247-835-00	CARBON	1.5K	5%	1/6W
R131	1-247-139-00	CARBON	2.2K	5%	1/4W

ELECTRICAL PARTS

Ref.No.	Part No.	Description				
R132	1-247-171-00	CARBON	47K	5%	1/4W	
R133	1-247-855-00	CARBON	10K	5%	1/6W	
R134	1-247-155-00	CARBON	10K	5%	1/4W	
R135	1-247-831-00	CARBON	1K	5%	1/6W	
R136	1-247-847-00	CARBON	4.7K	5%	1/6W	
R137	1-247-131-00	CARBON	1K	5%	1/4W	
R138	1-247-179-00	CARBON	100K	5%	1/4W	
R139	1-247-881-00	CARBON	120K	5%	1/6W	
R140	1-247-885-00	CARBON	180K	5%	1/6W	
R141	1-246-499-00	CARBON	12K	5%	1/4W	
R142	1-247-841-00	CARBON	2.7K	5%	1/6W	
R143	1-247-811-00	CARBON	150	5%	1/6W	
R144	1-247-861-00	CARBON	18K	5%	1/6W	
R145	1-247-851-00	CARBON	6.8K	5%	1/6W	
R147	1-247-831-00	CARBON	1K	5%	1/6W	
R148	1-247-843-00	CARBON	3.3K	5%	1/6W	
R149	1-246-505-00	CARBON	22K	5%	1/4W	
R150	1-247-863-00	CARBON	22K	5%	1/6W	
R151	1-247-863-00	CARBON	22K	5%	1/6W	
R152	1-247-863-00	CARBON	22K	5%	1/6W	
R153	1-247-833-00	CARBON	1.2K	5%	1/6W	
R154	1-247-855-00	CARBON	10K	5%	1/6W	
R160	1-247-831-00	CARBON	1K	5%	1/6W	
R301	1-246-499-00	CARBON	12K	5%	1/4W	
R302	1-246-482-00	CARBON	2.4K	5%	1/4W	
R303	1-247-139-00	CARBON	2.2K	5%	1/4W	
R304	1-246-500-00	CARBON	13K	5%	1/4W	
R305	1-247-847-00	CARBON	4.7K	5%	1/6W	
R306	1-247-826-00	CARBON	620	5%	1/6W	
R307	1-246-484-00	CARBON	3K	5%	1/4W	
R308	1-246-471-00	CARBON	820	5%	1/4W	
R309 ⚠	1-217-434-00	FUSIBLE	10	5%	1/2W	F
R311	1-247-852-00	CARBON	7.5K	5%	1/6W	
R312	1-247-844-00	CARBON	3.6K	5%	1/6W	
R313	1-247-816-00	CARBON	240	5%	1/6W	
R314	1-246-485-00	CARBON	3.3K	5%	1/4W	
R315	1-247-855-00	CARBON	10K	5%	1/6W	
R316	1-247-871-00	CARBON	47K	5%	1/6W	
R317	1-247-871-00	CARBON	47K	5%	1/6W	
R318	1-247-855-00	CARBON	10K	5%	1/6W	
R319	1-247-857-00	CARBON	12K	5%	1/6W	
R320	1-247-857-00	CARBON	12K	5%	1/6W	
R321	1-217-529-00	CARBON	33	5%	1/4W	
R322	1-247-855-00	CARBON	10K	5%	1/6W	
R323	1-247-847-00	CARBON	4.7K	5%	1/6W	
R324	1-247-855-00	CARBON	10K	5%	1/6W	

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R326	1-247-863-00	CARBON	22K	5%	1/6W
R327	1-247-855-00	CARBON	10K	5%	1/6W
R328	1-247-147-00	CARBON	4.7K	5%	1/4W
R329	1-247-883-00	CARBON	150K	5%	1/6W
R330	1-247-847-00	CARBON	4.7K	5%	1/6W
R331	1-247-123-00	CARBON	470	5%	1/4W
R332	1-247-123-00	CARBON	470	5%	1/4W
R333	1-247-809-00	CARBON	120	5%	1/6W
R334	1-247-839-00	CARBON	2.2K	5%	1/6W
R335	1-247-868-00	CARBON	36K	5%	1/6W
R336	1-247-863-00	CARBON	22K	5%	1/6W
R337	1-247-863-00	CARBON	22K	5%	1/6W
R339	1-247-813-00	CARBON	180	5%	1/6W
R340	1-247-816-00	CARBON	240	5%	1/6W
R341	1-247-816-00	CARBON	240	5%	1/6W
R342	1-247-816-00	CARBON	240	5%	1/6W
R343	1-247-863-00	CARBON	22K	5%	1/6W
R344	1-247-879-00	CARBON	100K	5%	1/6W
R510	1-247-855-00	CARBON	10K	5%	1/6W
R511	1-247-872-00	CARBON	51K	5%	1/6W
R512	1-247-879-00	CARBON	100K	5%	1/6W
R513	1-247-879-00	CARBON	100K	5%	1/6W
R514	1-247-839-00	CARBON	2.2K	5%	1/6W
R515	1-247-839-00	CARBON	2.2K	5%	1/6W
R516	1-247-813-00	CARBON	180	5%	1/6W
R517	1-247-826-00	CARBON	620	5%	1/6W
R518	1-247-813-00	CARBON	180	5%	1/6W
R519	1-247-813-00	CARBON	180	5%	1/6W
R520	1-247-863-00	CARBON	22K	5%	1/6W
R521	1-247-879-00	CARBON	100K	5%	1/6W
R522	1-247-855-00	CARBON	10K	5%	1/6W
R523	1-247-819-00	CARBON	330	5%	1/6W
R524	1-247-831-00	CARBON	1K	5%	1/6W
R525	1-247-847-00	CARBON	4.7K	5%	1/6W
R526	1-247-831-00	CARBON	1K	5%	1/6W
R527	1-247-855-00	CARBON	10K	5%	1/6W
R530	1-247-831-00	CARBON	1K	5%	1/6W
R531	1-247-871-00	CARBON	47K	5%	1/6W
R532	1-247-847-00	CARBON	4.7K	5%	1/6W
R533	1-247-855-00	CARBON	10K	5%	1/6W
R534	1-247-871-00	CARBON	47K	5%	1/6W

Ref.No.	Part No.	Description
RV101	1-226-236-00	RES, ADJ, CARBON 10K
RV102	1-226-238-00	RES, ADJ, CARBON 50K
RV201	1-226-236-00	RES, ADJ, CARBON 10K
RV202	1-226-238-00	RES, ADJ, CARBON 50K
RV301	1-226-239-00	RES, ADJ, CARBON 100K
RY301	1-515-473-00	RELAY
S302	1-554-763-11	SWITCH, PUSH (1 KEY)(DOLBY NR)
S501	1-553-856-00	SWITCH, KEY BOARD (REW)
S502	1-553-856-00	SWITCH, KEY BOARD (STOP)
S503	1-553-856-00	SWITCH, KEY BOARD (PLAY)
S504	1-553-856-00	SWITCH, KEY BOARD (FF)
S505	1-553-856-00	SWITCH, KEY BOARD (REC)
S506	1-553-856-00	SWITCH, KEY BOARD (PAUSE)
S507	1-553-856-00	SWITCH, KEY BOARD (AMS)
S508	1-553-856-00	SWITCH, KEY BOARD (REC MUTE)
S509	1-554-208-00	SWITCH, SLIDE (TIMER)
S551	1-554-205-00	SWITCH, PUSH
S552	1-554-205-00	SWITCH, PUSH
S553	1-554-205-00	SWITCH, PUSH
S554	1-554-205-00	SWITCH, PUSH
T301	1-433-267-00	TRANSFORMER, OSCILLATOR

NOTE:

- The mechanical parts with no reference number in the exploded views are not supplied.
- Items marked " ♠ " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- Due to standardization, parts with part numbers (Δ-ΔΔΔ-ΔΔΔ-XX or Δ-ΔΔΔΔ-ΔΔΔ-X) may be different from those used in the set.
- If there are two or more same circuitsin a set such as a stereophonic machine, only typical circuit parts may be indicated and capacitors and resistors in other same circuits may be omitted.

CAPACITORS:
MF:μF, PF:μμF.

RESISTORS
- All resistors are in ohms.
- F : nonflammable

COILS
- MMH : mH, UH : μH

SEMICONDUCTORS
In each case, U : μ, for example:
UA···: μA···, UPA···: μPA···, UPC···: μPC,
UPD···: μPD···